1994

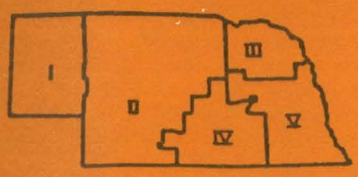
EC94-130-D 1994 Guide for Herbicide Use in Nebraska

Nebraska Cooperative Extension EC 94-130-D

1994 Guide for— HERBICIDE USE IN NEBR

Contents

RESTRICTED USE HERBICIDES. Amitrole, atrazine, AAtrex, Bicep, Bladex, Bullet, Cannon, Cycle, Cyclone, Extrazine II, Freedom, Gramoxone Extra, Hoelon, Herb, Laddok, Lariat, Lasso, Marksman, Micro-Tech, Partner, and Tordon are restricted use herbicides. Other herbicides may be classified as restricted use at some future date. The label will indicate if a product is restricted use. Only certified applicators should apply or supervise the application of restricted use herbicides. See your Extension educator if you need to be certified.



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This circular deals principally with herbicides as an aid for crop production. The suggestions for use are based on results at Nebraska research stations and elsewhere. Consult product label for additional information. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension is implied.

"Use Crop Production Chemicals Wisely"

- **READ THE LABEL BEFORE EACH USE**
- **APPLY ONLY AS DIRECTED**
- **STORE IN ORIGINAL LABELED CONTAINERS**
- **ELIMINATE HAZARDS FROM CONTAINERS BY RINSING AND PROPER DISPOSAL**
- **DO NOT USE 2,4-D ESTER, BANVEL (DICAMBA), COMMAND, AND SIMILAR HERBICIDES NEAR VEGETABLES, ORNAMENTALS, TREES, SHRUBS, AND BROADLEAF CROPS.**

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with th U.S. Department of Agriculture. Kenneth R. Bolen, Director of Cooperative Extension, University of Nebraska Institute of Agriculture and Natural Resources.

NOTES

Herbicide Applications

Soil Applied

Early preplant (EPP) treatments are made 10-30 days before planting. **Preplant surface applied** (PPSA) treatments are made 0-10 days before planting. Soil disturbance by some planters may allow weed growth in rows where herbicides are applied PPSA or EPP. **Preplant incorporated** (PPI) treatments are made before planting the crop. Thoroughly incorporate with rototiller or two angled passes of a tandem disc, field cultivator or similar equipment. **Preemergence** (PRE) treatments are applied from planting time to just before crop emergence or weed seed germination. **Surface mix** is the shallow mixing of a preemergence herbicide into the top 1" to 2" of soil using a rototiller, mulch treader, field cultivator or similar implement. Weed control with preemergence treatments may be poor if there is no rain to move the herbicide into the top inch. Rainfall required for activation is generally 1/4 to 1/2 inch on course textured soils and 1/2 to 1 inch on fine textured soils. To overcome dependence on rainfall and to increase dependability, some preemergence herbicides may be incorporated into the surface soil with a rotary hoe. Excessive rainfall may leach some of the more soluble herbicides into the subsoil, especially on sandy soils. Weed control with preplant herbicides is more satisfactory on surface-planted crops. Some weed species are resistent to particular herbicides. Herbicides and crops should be rotated to control a wider spectrum of weeds and to reduce the build-up of any particular herbicide in the soil.

Postemergence

Early post refers to herbicide applications made soon after the crop has emerged; control of late emerging weeds may be reduced. **Postemergence** (POST) treatments are applied after emergence of weeds or crop. **Directed** postemergence treatments are made to the lower portion of the crop plant.

Layby treatments are applied at last cultivation to provide an extended period of weed control.

Harvest aid treatments are applied late in the growing season to reduce weed seed production and make harvest easier.

Desiccants are applied after crop maturity to hasten drying and permit earlier harvest.

Excellent growing conditions make weeds more susceptible to postemergence herbicides. Likewise, crops may be more subject to herbicide damage when growing rapidly. **Adjust herbicide dosages downward** when excellent conditions for growth are present the week before application and **upward** when ideal growth is limited by one or more factors. Rate of carrier should be in accordance with label recommendations.

Application Pointers

One of the components of good herbicide performance is proper application of the correct amount. Equipment must be calibrated properly before spraying. For new sprayers, flush entire system with water before installing screens and nozzles.

The amount of solution applied per acre depends on the forward speed, the spacing of the nozzles, and the output of the nozzle which is dependent upon the size of the nozzle and the pressure. A change in any one of these will change the rate of application. To calibrate a sprayer refer to NebGuide G88-885, *Fine Tuning a Sprayer With the Ounce Calibration Method.* Also, remember if spraying with any material other than water as carrier, the output will be affected. This NebGuide also contains information on using fertilizers as carriers.

The selection of nozzles is an important criteria in herbicide application. The nozzle type, or orifice size, boom height, pressure, ground or air speed, and wind all greatly affect drift potential and damage to nearby crops. These same criteria affect the coverage of the herbicide on the plants or soil surface. In general, flat fan nozzles have given the most satisfactory results. Nozzles placed on 30-inch spacing with the height and angle adjusted for 100% overlap gives uniform coverage. Do not angle any nozzle greater than 30° from vertical as the drift potential greatly increases.

For floaters and sprayers with booms greater than 36 inches in height, 80° flat fan nozzles are recommended. For lower boom heights, 110° nozzles usually are recommended. The 110° nozzles are needed with the lower boom height to maintain 100% overlap. Also the 110° nozzles yield smaller particle size allowing lower pressures while maintaining good plant coverage and reducing the drift prone fines that occur with higher pressures. For farmer application with the lower boom heights and 110° nozzles, the low pressure (LP) or extended range (XR) nozzles are recommended. The XR and LP nozzles give good patterns at pressures from 15 to 40 psi, and allow for reduced pressures without the pattern distortion that may occur with other nozzles. These nozzles, which maintain patterns over a wide range of pressure, work well with monitors with rate controllers. On the higher booms the 80° nozzles are recommended because of the difficulty in maintaining a good pattern with the 110° nozzles on the higher boom heights. To get the particle sizes needed for good coverage with postemergence herbicides the pressure needs to be 35 to 40 psi with the 80° nozzles and, therefore, the extended range or low pressure nozzles, are probably not as useful.

For banding preemergence herbicides, even-flow flat fan nozzles are recommended.

For banding postemergence herbicides a three nozzle setup over the row with cone nozzles gives the best pattern. The next best selection probably would be the even flat fan nozzle. When the crop is taller than 4" the center nozzle should be removed to minimize crop injury. Again, use a set up with two or three nozzles for good coverage. Higher pressures are normally needed for the postemergence herbicides, especially where good coverage is important. For additional information on nozzles see NebGuide G89-995, *Nozzle Selection and Sizing.*

A few pointers on herbicide application are listed below:

1. It is not recommended to use any nozzle that requires smaller than a 50 mesh screen in order to reduce nozzle plugging.

2. Buy quality nozzles. Stainless steel, stainless steel inserts in nylon nozzles, and ceramic nozzles in the long run are the most economical.

3. Get a special nozzle cleaning brush. Keep pocket knives, paper clips, and wire away from the nozzles as they will distort the pattern and also change the flow rate of the nozzle. Also check the sprayer with water to make sure that the nozzles are not plugged and fittings and hoses do not leak before adding any herbicide.

4. Use strainers before the pump, and before the flow control system along with nozzle screens.

5. Use diaphragm check valve or other sprayer items to give instant on and instant off control to eliminate drip and delay when the boom is turned on and off.

Conservation Tillage Systems

No-Till

Early preplant treatments generally provide the most satisfactory weed control. This involves applying residue herbicides 10 to 30 days prior to planting. The objective is to apply the herbicide prior to the germination of summer annual weeds, especially grasses. This may eliminate the need for a nonselective herbicide like Gramoxone Extra or Roundup. It is important to use treatments with adequate residual control. A split herbicide application with a portion applied early preplant and a second increment at planting can be used. This could be helpful with short residue materials or where heavy rains or delayed planting occurs following the first treatment. Early preplant treatments, properly designed, can often provide consistent weed control at lower cost than planting time treatments. Soil disturbance by planter following a preplant treatment may allow weed growth in the row.

Planting time treatments of a preemergence herbicide are made at/or immediately after planting. When established weeds are present, a postemergence herbicide is combined with the preemergence herbicide. Atrazine, Bladex, Extrazine II, Canopy, Preview, Pursuit, Gramoxone Extra, Roundup or Bronco will control established broadleaf weeds, grasses or volunteer wheat depending on plant height. If grasses are less than 2" tall, Atrazine, Bladex, and Extrazine II will provide acceptable control. Control is improved when crop oil concentrate or 28% nitrogen are added. In corn or soybeans, 2,4-D ester may also be added for improved weed control. Gramoxone Extra should be applied with X-77 to grasses less than 4" tall. If grasses are taller than 4" and are growing vigorously, apply Roundup[1] at 1 pt/A. Kill volunteer wheat and annual bromes in April to prevent soil moisture loss.

Ridge-Till

With the ridge plant system, the row has fewer weeds because the weed seed produced the preceding year is not worked into the soil when the seedbed is prepared. During planting, sweeps or discs move soil containing corn kernels and ears, sorghum seed and/or heads, and most weed seed from the ridge. A banded herbicide treatment should be used at planting time in the row. If timely cultivation is not possible, weed density is heavy, or the field contains many hard to control weeds like velvetleaf, a broadcast herbicide treatment at planting time may be necessary.

Select the herbicide treatment from the pre-emergence treatments of soil applied herbicides. Early preplant treatments can be applied in early April prior to planting to keep early summer annual weeds under control. The rate of atrazine to use depends on future crops that will be planted.

The early herbicide treatment should eliminate planting through 4-inch or taller weed growth. Weeds like kochia and Russian thistle are troublesome if not killed. The trouble arises along the cutting edge of the planter sweep, where larger broadleaf weeds may not be uprooted or covered. Most early germinating broadleaf weeds can be controlled effectively and economically with 2,4-D. If 2,4-D is to be used at planting it is better to apply from a spray boom on the front end or underbelly of the tractor rather than after planting. If considerable grass weed growth is present before planting, Gramoxone Extra or Roundup should be used. Another option would be to preplant cultivate for row-middle tillage, leaving ridge top weed removal to the planter sweep. This works extremely well on fields where corn was ensiled. Preplant cultivation also allows for rebuilding ridges, which may be desirable if they have been damaged by harvest equipment or livestock tramping.

Ecofarming

Ecofarming is a system which controls weeds after wheat harvest and throughout the fallow period by using herbicides and/or tillage with minimum disturbance of crop residues and soils. For a more detailed discussion see page 29.

Herbicide Carryover

Certain herbicides can persist in the soil to the extent that rotational crops may be injured. The potential for herbicide carryover increases as one goes westward in Nebraska. Lower rainfall and low soil organic matter increases carryover potential. Herbicide carryover potential is greater on eroded soils and soils with pH greater than 6.8. Carryover is also a function of application accuracy. Carryover will be more apparent in headlands and other areas where sprayer overlap is common. Herbicide applications made late in the season have greater carryover potential compared to earlier applications.

Carryover can restrict crop rotation options as well as limit replant options if a crop is lost due to hail or other disasters. Care should be taken when choosing herbicides to fit your rotation sequence. The following is a partial list of herbicides which have carryover potential in Nebraska.

1. Ally
2. Amber
3. Atrazine, AAtrex
4. Atrazine prepacks: Bicep, Bicep II, Bicep Lite, Bullet, Extrazine II, Lariat, Laddok, Marksman, Sutazine
5. Canopy, Classic, Preview, Lorox Plus
6. Command, Commence
7. Curtail/Stinger
8. Glean
9. Princep
10. Pursuit, Pursuit Plus, Passport
11. Scepter, Squadron, Tri-Scept
12. Tordon
13. Treflan, Sonalan, Prowl

Consult herbicide labels for rotation intervals and restrictions. Conducting a plant bioassay can be helpful in determining whether carryover will be a problem in your fields. Additional information on conducting bioassays can be obtained in the NebGuide G74-113, *A Quick Test for Atrazine Carryover.*

Herbicide Resistance

Herbicide resistant weeds can develop as a result of repeatedly using the same herbicide or herbicides with the same mode of action. Herbicide resistant plants are naturally present in extremely low numbers. Repeatedly using the same herbicide allows the resistant weeds to multiply while the susceptible weeds are controlled. Over a period of time the weed population shifts to primarily herbicide resistant weeds and weed control failures are observed. Resistant weeds cannot be controlled by increasing the herbicide rate.

Triazine resistant kochia is common across western Nebraska. Isolated cases of triazine resistant pigweed have also been recorded. Resistance to sulfonylurea herbicides (Glean, Ally and Amber are examples) has been confirmed in Nebraska. Additional cases of herbicide resistance are likely to develop unless steps are taken to prevent this. An integrated weed management program is suggested to minimize the development of herbicide resistant weeds.

Suggestions to minimize the development of herbicide resistant weeds include the following:

1. Rotate crops to keep any one weed species from dominating. Rotations including row crops, small grains and perennial forage crops are the most effective.
2. Include tillage as a component of the weed management program. Crop rotation permits a variation in tillage timing.
3. Utilize cultural practices that enhance crop growth thereby maximizing competitiveness with weeds. Planting sorghum and soybeans in narrow rows improves their weed competitiveness.
4. Utilize herbicides with different modes of action in successive years and, where possible, within a year. This approach will prevent a weed resistant to one herbicide from increasing rapidly. See the discussion on Classification of Herbicides, page 5.
5. Use short residual rather than persistent herbicides. Most cases of resistant weeds involve persistent herbicides. Where long residual herbicides are used, other control measures should also be employed.

Classification of Herbicides by Mode of Action and Family

Herbicides can be classified into families based on their chemical similarity. In some cases, herbicides from different families have a similar mode of action, the process by which the herbicide kills the weed. Combinations of herbicides with similar modes of action can lead to problems. Repeated use of herbicides in the carbamothioate family (Sutan, Eradicane, etc.) can lead to reduced control over a period of time by selecting for soil microbes which readily degrade these materials. Repeated use of triazine herbicides (Atrazine, Bladex, etc.) can result in the selection of herbicide resistant weeds. Using sulfonylurea and imidazolinone herbicides (Classic, Pursuit, etc.) in the same growing season can result in increased carryover problems or possible crop injury. By knowing which herbicides have a similar mode of action, these problems can be avoided.

Site of Herbicide Uptake

MODE OF ACTION\HERBICIDE FAMILY

AMINO ACID INHIBITOR
- ALS Inhibitors
  - Imidazolinone Family
    - Arsenal - Imazapyr-R/F
    - Pursuit - Imazethapyr-R/F
    - Scepter - Imazaquin-R/F
  - Sulfonylamide Family
    - Broadstrike -Flumetsulam-R/F
  - Sulfonylurea Family
    - Accent - nicosulfuron-F
    - Ally - metsulfuron-F/R
    - Amber - triasulfuron-F/R
    - Battalion -Mon 12000-R/F
    - Beacon - primisulfuron-F/R
    - Classic - chlorimuron-F/R
    - Glean - chlorsulfuron-F/R
    - Oust - sulfometuron methyl-F/R
    - Permit -Mon 12000-R/F
    - Pinnacle - thifensulfuron methyl-F/R
  - EPSP Inhibitor Family
    - Roundup - glyphosate-F

PIGMENT INHIBITORS
- Unclassified Family
  - Amitrole - amitrole-F
  - Command - clomazone-R/S
  - Zorial - norflurazol-S

GROWTH REGULATORS
- Benzoic Acid Family
  - Banvel, Clarity - dicamba-F/R/S
- Phenoxy Family
  - 2,4-D - many-F/R
  - 2,4DB - butyrac-F/R
  - MCPA - MCPA-F/R
  - MCPP - mecroprop-F
- Pyridine Family
  - Garlon - triclopyr-F/R
  - Stinger - clopyralid-F/R
  - Tordon - picloram-F/R

LIPID INHIBITORS
- Carbamothioate Family
  - Avadex - diallate-S
  - Eptam - EPTC-R
  - Eradicane - EPTC-R
  - Far-Go - trialiate-S
  - Ro-Neet - cycloate-R/F
  - Sutan - butylate-R/F
  - Vernam - vernolate-R
- Diphenyl Ether Family
  - Blazer - acifluorfen-F
  - Cobra - lactofen-F
  - Goal - oxyfluorfen-R/S
  - Reflex - fomesafen-R/F
- Unclassified Family
  - Assure - quizalofop-F
  - Fusilade 2000 - fluazifop-F
  - Hoelon - diclofop-methyl-F
  - Option - fenoxaprop-F
  - Poast - sethoxydim-F
  - Select - clethodium-F

PHOTOSYNTHETIC INHIBITORS
- Bipyridilium Family
  - Cyclone - paraquat-F
  - Diquat - diquat-F
  - Gramoxone Extra - paraquat-F

SITE OF HERBICIDE UPTAKE
R = Root Uptake
S = Shoot Uptake
F = Foliage Uptake
Letter sequence indicates order of herbicide uptake.

Triazine Family
AAtrex - atrazine-R/F
Bladex - cyanazine-R/F
Triazines (continued)
Evik - ametryn-R/F
Lexone/Sencor - metribuzin-R/F
Pramitol - prometon-R/F
Princep - simazine-R
Velpar - hexazinone-R/F
Uracil Family
Hyvar - bromacil-R
Sinbar - terbacil-R
Urea Family
Karmex - diuron-R
Lorox - linuron-R
Spike - tebuthiuron-R
Unclassified Family
Basagran - bentazon-F
Tough - pyridate-F

PROTEIN INHIBITORS
Amide Family
Dual - metolachlor-S/R
Frontier - acetochlor-S/R
Harness - acetochlor-S/R
Lasso - alachlor-S/R
Ramrod - propachlor-S/R
Surpass - acteochlor-S/R
Phenylcarbamate Family
Betanal - phenmadipham-F
Chem-Hoe - propham-S/R/F
Furloe - chlorporpham-S/R/F
Dinitroanaline Family
Balan - benefin-R/S
Curbit -ethalfluralin-S
Prowl - pendimethalin-S
Sonalan - ethalfluralin-S
Surflan - oryzalin-S
Treflan - trifluralin-S
Unclassified Family
Dacthal - DCPA-R
Kerb - pronamide-R

RESPIRATORY INHIBITORS
Hydroxybenzonitrile Family
Buctril - bromoxynil-F

UNKNOWN
Endothall - endothall -
Krenite - fosamine-F
MSMA - many-

SITE OF HERBICIDE UPTAKE
R = Root Uptake
S = Shoot Uptake
F = Foliage Uptake
Letter sequence indicates order of herbicide uptake.

Minimizing Water Contamination

Pesticide contamination of groundwater and surface water is a public concern. Contamination results from two types of sources — point and non-point.

Point Source Contamination

Point source contamination results from localized spills or accidents, i.e., the contamination can be traced back to an identifiable area. Point source contamination accounts for large doses being introduced into groundwater and poses a high risk of rendering the water unfit for drinking.

Spills and other mishaps which occur during the handling and mixing of pesticides are a major contributing factor. There are several steps we can take to minimize contamination.

Wells are a direct conduit to the groundwater and extra care should be taken at these sites when handling pesticides. In addition, many wells are not adequately sealed which increases the risk of contamination in the event of a spill. Mix pesticides at least 200 ft. from a well. Using a nurse-tank as a water source helps avoid these problems. Prevent back-siphoning into the well. Keep the end of the filler hose above the water level of the tank at all times. Anti-backflow devices for hoses can be purchased from irrigation and spray equipment suppliers. Clean up spills, especially near wells and other water supplies.

Because of the risk of a major mishap and groundwater contamination from chemigation we do not suggest herbigation. If you need information, contact the specific chemical company or you can consult NebGuide G89-923, *Anti-Pollution Protection When Applying Chemicals with Irrigation Systems.*

Additional practices which help prevent point source contamination include triple-rinsing and the proper disposal of pesticide containers and excess pesticides.

For help in any emergency involving spills, leaks, fires, or exposure, phone 800-424-9300.

Non-point Source Contamination

Contamination which occurs from non-point sources cannot be traced back to a specific location or event. Examples of non-point source contamination would include the leaching of pesticides through the normal course of pesticide use, or pesticides carried into streams by surface runoff. The extent of non-point source contamination is dependent upon herbicide, soil, geology, topography, management practices, and weather.

There are several practices which minimize non-point source contamination. Apply the proper amount of herbicide for the crop, weed and site. Read the label to determine what the correct use rate is. Proper sprayer calibration assures application uniformity and more effective control. The amount of product can also be reduced by using band applications instead of broadcast treatments. These practices not only reduce the potential for groundwater contamination but also decrease the chance of crop injury, carryover problems, and make weed control more economical.

In choosing a herbicide, less mobile, short residual products are less likely to leach to the water table. Crop and herbicide rotation also reduces risk as a result of using different herbicides each year.

Identify high risk areas. The greatest risk for groundwater contamination exists where the water table is close to the soil surface. In addition, herbicides are more likely to contaminate groundwater when applications are made to coarse textured soils low in organic matter. High pH soils also present concerns because some herbicides leach more readily under these conditions. Extra care should be taken when any of these situations exist.

The greatest risk for surface water contamination is on steeply sloping land that drains directly into a stream/lake. Management practices such as terraces and conservation tillage to reduce water runoff will help. Reducing herbicide rates by banding or using combinations will reduce the loading potential of that product. Untreated buffer zones next to streams/lakes and grass water ways to encourage water infiltration may also be helpful.

Mixing Herbicides

Most herbicide labels give mixing sequences for tank mix combinations. If directions are not given, follow these steps:

1. Add approximately one-half of the needed water to the tank with agitation on.
2. If called for, add compatibility agents, anti-foaming agents, wetting agents, fertilizer, or other additives except crop oil.
3. Add flowables, dry flowables, or wettable powders, and agitate.
4. If needed, add emulsifiable concentrates, crop oils and/or surfactants, and agitate. Don't over agitate.
5. Finish filling tank with water while continuing agitation.
6. Apply as soon as possible after mixing. Avoid holding overnight whenever possible.

Sprayers should provide good agitation of spray solution and be equipped with appropriate strainers and screens to avoid nozzle clogging. **Do not mix herbicides near water sources. Herbicides may not always mix readily. Conduct a compatibility test if in doubt.**

Cleaning the Sprayer

First rinse the sprayer with a material which acts as a solvent for the herbicide. Dispose of the rinse on registered crop or site. Kerosene and fuel oils dissolve oil-soluble herbicides such as 2,4-D ester. Chemicals which form emulsions when mixed with water are oil-soluble. After the oil rinse, a rinse with water containing detergent will help remove the oil. Oil-soluble herbicides are the most difficult to remove. For most water-soluble herbicides, repeated rinsing with water is usually enough. Hormone type compounds require extra precautions. 2,4-D amine salts are water-soluble.

Cleanup Procedures

2,4-D, Banvel, Clarity, Curtail, FallowMaster, Landmaster, Marksman, Tordon

If Banvel or 2,4-D were used, fill the tank with water and ammonia. Add one quart of household ammonia to 25 gallons of water. Approved tank cleaner can be used instead of ammonia as specified on product label. Pump enough solution through the hose and nozzles to fill these parts completely. Then fill the tank, close and leave for 24 hours before rinsing thoroughly with water.

Activated charcoal can be used after the preliminary rinsing to decontaminate the sprayer. A 3% suspension absorbs the 2,4-D. Agitate the suspension for two to three minutes and drain, then rinse thoroughly with clear water.

Atrazine, Bicep, Bladex, Extrazine II, Lariat, Laddok, Lexone, Sencor, Sutazine

See that none of the powder remains in the tank or spraying system. Thoroughly clean all equipment immediately after use.

Accent, Ally, Amber, Beacon, Classic, Gemini, Glean, Pinnacle, Canopy, Preview

1. Drain tank, then flush tank, boom and hoses with clean water for a minimum of 10 minutes.
2. Fill the tank with clean water, then add one gallon ammonia per 100 gallons of water. Flush through boom and hoses, allow to sit for 15 minutes with agitation, then drain.
3. Repeat Step 2.
4. Nozzles and screens should be removed and cleaned separately. To remove traces of ammonia, rinse the tank thoroughly with clean water and flush through hoses and boom.

Weed Response to Burndown Herbicides*

No-till Corn and Grain Sorghum

Herbicide**	Annual Bluegrass	Chickweed	Downy Brome	Dandelion	Foxtail Barley	Evening Primrose	Henbit	Horseweed (Marestail)	Pennycress	Prickly Lettuce	Shepherdspurse	Purslane Speedwell	Virginia Pepperweed	Tall Knotweed	Foxtail	Barnyardgrass	Lambsquarters	Field Sandbur	Kochia	Kochia-Triazine Resistant	Russian Thistle	Smartweed—Annual	Velvetleaf	Sunflower	Rye	Winter Wheat	Alfalfa	Sweet Clover	Hairy Vetch	Grain Sorghum***
2,4-D Ester	1	7	1	8	1	7	6	10	10	9	10	7	8	6	1	1	9	1	7	4	8	7	8	10	1	1	6	7	9	Y
Banvel	1	10	1	9	1	8	8	8	9	9	7	4	8	9	1	1	8	2	9	9	9	8	8	10	1	1	9	8	10	N
Gramoxone Extra	9	10	8	6	8	7	9	7	10	8	9	6	9	8	7	8	7	9	9	9	6	6	8	10	6	6	4	9	8	Y
Roundup	10	10	10	5	9	8	9	9	10	6	10	10	8	9	9	10	9	10	8	8	9	8	9	9	10	10	4	3	5	Y
Atrazine	9	10	7	4	9	9	10	8	10	9	10	10	9	10	7	6	10	6	10	1	9	10	10	10	6	6	4	3	6	Y
Bladex	10	10	8	4	10	10	10	10	10	10	10	10	10	10	8	7	10	7	10	1	9	9	9	10	4	6	4	6	7	N
Atrazine + 2,4-D	10	10	8	6	10	10	10	10	10	10	10	10	10	10	8	7	10	7	10	6	9	10	10	10	5	5	7	8	10	Y
Bladex + 2,4-D	10	10	7	6	10	9	10	10	10	10	10	10	10	10	8	7	10	7	9	4	9	10	9	10	4	3	7	8	10	N
Atrazine + Banvel	10	10	8	7	10	10	10	10	10	10	10	10	10	10	9	7	10	7	10	10	9	10	9	10	5	5	9	9	10	N
Gramoxone + Atrazine	10	10	10	7	10	10	10	9	10	10	10	10	10	10	9	10	10	10	10	9	9	9	10	10	10	10	5	7	8	Y
Roundup + Atrazine	10	10	10	8	8	10	10	10	10	10	10	10	10	10	9	10	10	10	10	10	10	10	10	10	10	10	4	3	6	Y
Gramoxone + Bladex	10	10	10	7	8	10	10	9	10	10	10	10	10	10	10	10	10	10	9	9	9	8	9	10	9	10	3	8	8	N
Atrazine + Bladex (Extrazine II)	9	10	7	6	9	9	10	9	10	10	10	10	9	10	8	7	10	7	10	2	9	10	9	10	6	7	3	4	8	N
Atrazine + Bladex + 2,4-D	10	10	8	5	9	10	10	10	10	10	10	10	10	10	8	8	10	8	10	4	9	10	9	10	6	6	7	8	10	N
Gramoxone + Atrazine + Bladex	10	10	10	7	10	10	10	10	10	10	10	10	10	10	10	9	10	10	10	9	9	10	10	10	10	10	5	6	7	N

No-Till Soybeans

Herbicide**	Annual Bluegrass	Chickweed	Dandelion	Downy Brome	Foxtail Barley	Evening Primrose	Henbit	Horseweed (Marestail)	Pennycress	Prickly Lettuce	Shepherdspurse	Purslane Speedwell	Virginia Pepperweed	Tall Knotweed	Foxtail	Barnyardgrass	Lambsquarters	Field Sandbur	Kochia	Kochia-Triazine Resistant	Russian Thistle	Smartweed—Annual	Velvetleaf	Sunflower	Rye	Winter Wheat	Alfalfa	Sweet Clover	Hairy Vetch
Command + Prowl	2	1	3	7	3	5	1	1	6	6	6	6	6	7	7	6	6	6	9	9	7	8	9	6	5	5	3	3	3
2,4-D Ester	1	4	8	1	1	7	4	8	10	9	10	8	9	6	1	1	9	1	6	4	9	8	8	10	1	1	5	6	7
Command	1	1	3	5	4	7	1	2	6	6	6	5	6	6	6	6	6	6	8	8	6	8	9	5	6	6	4	3	3
Gramoxone Extra	8	10	5	7	8	7	9	7	10	8	9	6	9	9	7	8	8	7	9	9	9	6	8	10	6	6	4	9	8
Roundup	10	10	6	10	9	8	9	9	10	6	10	10	9	9	9	10	9	10	8	8	9	8	8	9	10	10	4	3	6
Canopy/Preview	10	10	7	3	8	6	8	8	10	9	10	4	6	9	4	4	9	4	8	7	9	9	8	8	3	3	4	0	6
Scepter	5	9	4	1	5	5	7	4	9	6	9	3	1	3	3	3	5	5	8	8	5	7	8	8	1	1	1	1	3
Sencor/Lexone	2	10	5	7	8	6	8	5	10	7	9	2	6	8	5	5	5	6	9	1	8	7	8	8	5	5	5	5	6
Pursuit	5	8	4	2	6	5	7	4	8	7	8	3	3	3	5	4	5	7	8	8	6	8	9	8	1	1	1	2	2
Pursuit Plus	5	9	4	2	6	6	6	5	8	8	8	4	3	4	6	5	5	7	8	8	6	8	9	8	1	1	1	2	2
Gramoxone + Canopy /Preview	9	10	6	8	8	8	9	9	10	10	10	7	9	10	9	10	10	9	9	9	9	9	9	10	6	6	4	4	8
Roundup + Canopy /Preview	10	10	8	10	10	7	9	10	10	10	10	10	9	10	10	10	10	10	10	10	10	9	9	10	8	10	3	3	7
Gramoxone + Scepter	9	10	6	7	9	8	9	7	10	9	10	6	9	10	9	9	10	9	9	9	9	8	9	10	7	6	3	3	8
Roundup + Scepter	10	10	8	10	9	7	9	9	10	10	10	9	9	10	10	10	10	10	10	10	10	9	9	10	10	9	4	3	7
Gramoxone + Sencor /Lexone	10	10	6	7	9	8	9	7	10	10	10	8	9	10	9	9	10	9	10	10	10	8	10	10	7	7	3	3	8
Roundup + Sencor/Lexone	10	10	8	10	8	7	9	9	10	9	10	10	9	10	8	10	10	10	10	10	10	9	9	10	10	10	4	4	7
Gramoxone + Lorox/Linex	9	10	6	7	7	8	9	7	10	10	10	7	9	10	9	9	10	9	10	10	10	4	9	10	7	7	3	3	8
Roundup + Lorox/Linex	10	10	8	10	9	7	9	7	10	10	10	9	9	10	9	10	10	10	10	10	10	8	9	10	10	10	3	3	7

Rating	Percent Control
10	95-100
9	90-95
8	80-90
7	70-80
6	60-70
5-2	< 60
1	No Effect

* This guide presents burndown information only. It *does not* reflect residual weed control.

** Herbicide rates are 2,4-D ester, 1.5 pt/A; Roundup, 1pt/A; Gramoxone Extra, 1.5 pt/A; other herbicide rates as given on label and in this guide for no-till weed control.

*** Treatments recommended for use in no-till Grain Sorghum.

Weed Response to Selected Herbicides

Field Corn, Popcorn* and Sweet Corn** and Silage***

Plant response may be altered by growing conditions, genetic variation in crops and weeds, soil type, pH, organic matter and rates of application. Ratings may vary from season to season and geographical areas within the state. Ratings apply when herbicides are used as suggested in this publication. See pages 44-53 for additional problem weeds and their control.

Response Ratings:

Ratings are for light to moderate weed populations, favorable conditions and weed growth stage as specified on product label. High weed populations, adverse conditions, or large weeds will reduce control.

E = Excellent (90-100%)
G = Good (75-90%)
F = Fair (50-75%)
P = Poor (0-50%)

Herbicide	Annual Morningglory	Barnyardgrass	B. Nightshade	Cocklebur	Crabgrass	Fall Panicum	Foxtail	Jimsonweed	Kochia	Kochia-Triazine Resistant	Lambsquarters	Pigweed	Ragweed	R. Thistle	Sandbur	Shattercane/Sorghum	Smartweed	Sunflower	Velvetleaf	W. Buckwheat	Crop Safety[a]	Recrop Interval in Months, When Changing to Nonlabeled Crop[b]
Soil Applied Herbicides																						
AAtrex/Atrazine*,**,***	G	F	E	F/G	F	P	F/G	G	E	P	E	E	E	E	F	P	E	G	G	E	E	6-24
Bicep II/Dual II	G	E	E	F	G	G	E	G	E	P	E	E	E	G	F	P	G	G	G	G	E	6-24
Bicep or Dual + AAtrex*,**, ***	G	E	E	F	G	G	E	G	E	P	E	E	E	G	F	P	G	G	G	G	G	6-24
Bladex**	E	G	E	G	G	F	G	E	E	P	E	F	E	E	F	P	E	G	F	E	G	2-4
Bladex + Atrazine or Extrazine II*,**	E	G	E	G	G	F	G	E	E	P	E	G	E	E	F	P	E	G	G	E	G	6-24
Cycle**,***	G	E	E	F	E	E	E	F	E	P	G	G	E	G	F	P	G	F	F	G	G	4-18
Dual/Dual II*,**	P	E	G	P	E	E	E	P	P	P	G	G	F	P	F	P	P	P	P	P	G	4-18
Dual + Atrazine + Sencor	G	E	E	F	G	G	E	F	G	P	E	E	E	G	F	P	G	G	G	G	G	6-24
Dual + Bladex	G	E	E	F	E	E	E	F	E	P	G	G	E	G	F	P	G	F	F	G	G	4-18
Dual + Bladex + Sencor	G	E	E	F	E	E	E	F	G	P	G	G	E	G	F	P	G	F	F	G	G	4-18
Eradicane*,**, ***	G	E	E	P	E	E	E	P	F	F	G	G	F	P	G	G	P	P	P	F	G	1-2
Eradicane + Atrazine*,**,***	G	E	E	F	E	E	E	G	E	F	E	E	G	G	G	G	G	G	G	G	G	6-24
Eradicane + Bladex*	G	E	E	F	E	E	E	G	E	F	E	G	G	G	G	G	G	F	F	G	G	2-4
Frontier***	P	E	G	P	E	E	E	P	P	P	G	G	F	P	F	P	P	P	P	P	G	4-18
Frontier + Atrazine***	G	E	E	F	G	G	E	G	E	P	E	E	E	G	F	P	G	G	G	G	G	6-24
Lasso/Micro Tech*,**,***	P	E	G	P	E	E	E	P	P	P	G	G	F	P	F	P	P	P	P	P	G	2-4
Lariat/Bullet or Lasso + Atrazine*,**,***	G	E	E	F	G	G	E	F	E	P	E	E	E	G	F	P	G	G	G	G	G	6-24
Lasso or Dual + (Atrazine + Bladex) or Extrazine II	G	E	E	F	E	E	E	F	E	P	E	E	E	G	F	P	G	G	G	G	G	6-24
Lasso + Atrazine + Sencor	G	E	E	F	G	G	E	F	G	P	E	E	E	G	F	P	G	G	G	G	G	6-24
Lasso + Bladex*	G	E	E	F	E	E	E	F	E	P	G	G	E	G	F	P	G	F	F	G	G	2-4
Lasso + Bladex + Sencor	G	E	E	F	E	E	E	F	G	P	G	G	E	G	F	P	G	F	G	G	G	2-18
Prowl + Atrazine	G	E	G	F	E	E	E	F	E	F	E	E	G	G	F	P	G	G	G	G	G	6-24
Prowl + Bladex	G	E	G	F	E	E	E	F	E	F	E	G	G	G	F	P	G	F	F	F	G	4-12
Sutan +*,**,***	F	E	G	P	E	E	E	P	P	P	G	F	F	P	G	G	P	P	P	F	G	1-2
Sutan+ + Atrazine*,***	G	E	E	F	E	E	E	G	E	P	E	E	G	G	G	G	G	G	G	G	G	6-24
Sutan+ + (Atrazine + Bladex) or Extrazine II*	G	E	G	P	E	E	E	G	E	P	E	E	G	G	G	G	G	G	F	G	G	6-24
Sutan+ + Bladex*	F	E	G	P	E	E	E	G	E	P	E	G	G	G	G	G	G	F	F	G	G	2-4
Sutazine+*,**,***	G	E	E	F	E	E	E	G	E	P	E	E	G	G	G	G	G	G	G	G	G	6-24
Postemergence Herbicides																						
Weed size influences performance — see label																						
AAtrex/Atrazine/Bicep*,**,***	E	F	E	E	F	P	G	E	E	P	E	E	E	F	F	P	E	E	E	E	G	6-24
Accent*	G	G	-	-	P	G	G	G	-	-	-	G	-	-	G	E	G	-	-	-	G	1-18
Accent + Atrazine	E	G	E	E	P	G	G	E	E	-	E	E	E	F	G	E	E	E	E	E	G	6-24
Accent + Banvel	E	G	G	E	P	G	G	G	G	G	G	G	G	E	G	E	E	G	F	E	G	1-2
Accent + Buctril	E	G	E	E	P	G	G	E	G	G	G	G	E	E	G	E	E	E	E	E	G	1-18
Banvel/Clarity***	E	P	G	E	P	P	P	F	G	G	G	G	G	E	P	P	E	G	F	E	G	1-2
Beacon*,***	G	P	G	E	P	G	F	G	G	G	F	G	E	F	F	E	G	E	F/G	G	G	1-18
Bladex	G	F	E	G	G	F	G	E	E	P	E	G	E	F	F	P	E	G	G	G	F	2-4
Buctril*	E	P	E	E	P	P	P	E	G	G	G	G	E	G	P	P	E	E	E	E	E	0
Buctril + Atrazine	E	P	E	E	P	P	P	E	G	G	E	E	E	G	P	P	E	E	E	E	E	6-24
Buctril + Banvel	E	P	E	E	P	P	P	G	E	E	G	E	G	E	P	P	E	E	E	E	G	1-2
Extrazine II*,**	G	F	E	E	G	F	G	E	E	P	E	G	E	F	F	P	E	G	G	E	G	6-24
Laddok	G	P	G	E	P	P	P	E	G	G	G	G	E	P	P	P	E	E	E	E	E	6-24
Marksman	E	P	E	E	P	P	P	G	G	G	E	E	E	G	P	P	E	E	E	E	G	6-24
Pursuit***	G	G	G	E	G	-	G	G	F	F	F	E	G	-	-	E	G	G	G	-	G	4-26
Sencor + Basagran	G	P	G	E	P	P	P	E	G	G	G	G	E	P	P	P	E	E	E	E	G	6-24
Tough + Atrazine	E	F	E	E	F	P	G	E	E	P	E	E	E	F	F	P	E	E	E	E	G	6-24
2,4-D**,***	E	P	G	E	P	P	P	G	F	F	G	G	G	F	P	P	F	G	G	P	F	1
2,4-D + Banvel***	E	P	E	E	P	P	P	F	G	G	G	G	G	G	P	P	E	G	G	E	G	1-2

[a]Crop varieties vary in their response to herbicides.

[b]Values will vary with soil texture, pH, organic matter and rainfall or irrigation, rotational crop and herbicide rate. For more information see NebGuide G83-637, *Herbicide Carryover.*

* Registered for popcorn. **Registered for sweet corn. ***Registered for silage.

Corn

No-Till

Herbicide	Commercial product per Acre: Sandy Loam < 1% OM	Silt Loam 1-2% OM	Silty-Clay Loam > 2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
Cool-Season Grass Sod (including bromegrass and bluegrass)					
AATREX 4L[3]	Do not use	2 qt	2 qt.	Apply when grass is 4"-6" and before corn emerges	Cost: $12.07-$15.92.
+ GRAMOXONE EXTRA[1]		1.5-2.5 pt	1.5-2.5 pt		
ROUNDUP[1]	1-1.5 qt	1-1.5 qt	1-1.5 qt	Fall new growth	Use appropriate herbicide at planting. Cost: $11.54-$17.32
Alfalfa/Clover Sod					
2,4-D LV Ester (4)	1 qt	1 qt	1 qt	Apply in fall or Apr.-May to alfalfa with 4" new growth	2,4-D + Banvel used to kill alfalfa. Don't apply with 28% UAN or a triazine herbicide. If bromegrass or bluegrass is present add Roundup. Apply the 2,4-D + Banvel at least 7 days before planting. On sandy soils don't plant corn for 10 days. Cost: $8.02
+ BANVEL	0.5 pt	0.5 pt	0.5 pt		
followed by: appropriate herbicide at planting or early preplant					
Rye or Winter Wheat					
AATREX 4L	1.2 qt	1.4 qt	1.6 qt	Apply when rye and wheat are 4-10" and before corn emerges	On dryland, moisture may be inadequate for corn. Cost: AAtrex + Gramoxone $8.12-$13.55: AAtrex + Bronco $23.88-35.19: Atrazine + Bladex + Gramoxone Extra $15.59-$30.00.
+ BRONCO	3 qt	4 qt	4.5 qt		
ATRAZINE 4L	0.5 qt	0.75 qt	1-1.25 qt		
+ BLADEX 4L	1.25 qt	1.75 qt	2.5-2.75 qt		
+ GRAMOXONE EXTRA[1]	1.5-2.5 pt	1.5-2.5 pt	1.5-2.5 pt		
Continuous Row Crop[4]					
AATREX/ATRAZINE 4L[3]	Do not use[a]	2.0 qt	2.0 qt	0-15 days preplant; for 16-30 days preplant increase rates 20%	Add 0.5-1 pt of 2,4-D LV ester or 0.5 pt Banvel to control broadleaf weeds. For triazine resistant kochia add Banvel or Fallow Master. Emerged grass weeds under 1.5 inches are normally controlled with full rates of atrazine or Bladex. Add 1.5-2.5 pt Gramoxone Extra to control larger emerged grass. For volunteer corn use Roundup[1] at 0.75-1 pt/A in 5 gpa water before crop emergence. Cost without Gramoxone Extra: $4.42-$6.31: Bicep $14.63-$19.51: Dual + Atrazine $16.35-$34.53; Bladex + Atrazine $ 7.56-$15.12; Bullet $17.31-$21.03; Extrazine Alone $6.77-$18.06; Extrazine II + Dual $18.70-$46.91; Atrazine + Bladex + Dual $19.49-$38.98; Bladex $11.68-$21.24; Atrazine + Partner \ Micro Tech $18.31-$22.91; Micro-Tech + Bladex $22.14-$29.89; Cycle $20.32-$23.71.
AATREX/ATRAZINE 4L[3]	1.4 qt	1.6 qt	1.8 qt		
+ DUAL/DUAL II	1.5-2.0 pt	1.5-2.5 pt	2-3 pt		
AATREX/ATRAZINE 4L[3]	1.2 qt	1.6 qt	2 qt		
+ MICRO-TECH	2.25 qt	2.25 qt	2.75 qt		
or PARTNER	or 3.5 lb	3.5 lb	4.0 lb		
BICEP/BICEP II	1.8-2.4 qt	2.4 qt	2.4 qt		
BULLET	3.5 qt	3.75 qt	4.25 qt		
AATREX/ATRAZINE 4L[3]	0.75 qt	1.4 qt	2 qt		
+ BLADEX 4L	0.75 qt	1.4 qt	2 qt		
CYCLE	Do not use	3.0 qt	3.5 qt		
AATREX 4L	0.5 qt	0.75 qt	1 qt	0-30 days preplant. On sand use at least 14 days preplant.	
+ BLADEX 4L	1.0 qt	1.5 qt	2 qt		
+ DUAL/DUAL II	1.5-2.0 pt	1.5-2.5 pt	2-3 pt		
BLADEX 90DF	Do not use	2.2-2.7 lbs	3.3-4.0 lbs		
BLADEX 4L	1.2 qt	1.75 qt	2.0 qt		
+ MICRO-TECH	2.25 qt	2.25 qt	2.75 qt		
EXTRAZINE II with or without DUAL/DUAL II	1.5 qt	2.75 qt	4.0 qt		
	1.5-2.0 pt	1.5-2.5 pt	2-3 pt		

[a]Rate required poses risk of groundwater contamination.

Ridge-Till

Herbicide	Commercial product per Acre: Sandy Loam < 1% OM	Silt Loam 1-2% OM	Silty-Clay Loam > 2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
ROUNDUP	1 pt	1 pt	1 pt	Apply 1-2 weeks, Preplant. Good on annual grasses less tnan 6" tall, good to excellent on broad-leaves 6" or less.	Cost: Roundup + Banvel $10.42; 2,4-D + Banvel $6.34; Banvel + Buctril $11.20.
+					
BANVEL	0.5 pt	0.5 pt	0.5 pt		
2,4-D LV Ester (4)	1 pt	1 pt	1 pt		
+					
BANVEL	0.5 pt	0.5 pt	0.5 pt		
BANVEL	0.5 pt	0.5 pt	0.5 pt		
+					
BUCTRIL	1.0 pt	1.0 pt	1.0 pt		

Field Corn, Popcorn*, Sweet Corn**, and Silage***

Tilled Seedbed

(See Weed Response Chart on page 9 before selecting herbicides)	Herbicide Commercial product per Acre: Sandy Loam <1% OM	Silt Loam 1-2% OM	Silty-Clay Loam > 2% OM	Application Time, Remarks and Approximate Cost/A Broadcast
AATREX/ATRAZINE DF*,**,***[3]	Do not use[a]	2.0 lb	2.0 lb	EPP, PPSA, PPI, PRE, SURFACE MIX or EARLY POST— May affect sensitive crops the following year especially on high pH soils. Cost: $6.00.
BICEP/BICEP II*,**,***	1.8-2.4 qt	2.4-3.0 qt	2.4-3.0 qt	EPP, PPSA, PRE, SURFACE MIX, EARLY POST — Cost: $14.62-$24.38.
BLADEX DF	Do not use	2.7 lb	3.6 lb	PPSA, PRE, SURFACE MIX EARLY POST — Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: $14.33-$19.11.
BLADEX DF	1.30 lb	2.20 lb	3.10 lb	PPSA, PRE, SURFACE MIX or EARLY POST— Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Carryover could affect some crops. Cost: $8.11-$20.39.
+ ATRAZINE DF	0.40 lb	0.90 lb	1.30 lb	
BULLET*,**	3.0 qt	3.2 qt	3.5 qt	PPSA, PRE, or SURFACE MIX. Cost: $14.84-$17.31.
CYCLE**,***	Do not use	3.0 qt	3.5 qt	
DUAL/DUAL II*,**,***	1.5 pt	2.0 pt	2.5 pt	EPP, PPSA, PRE, SURFACE MIX, or LAYBY— Dual and Dual + AAtrex may be applied early post. Dual may be applied layby. Injury may occur with Dual + Bladex on soils that are calcareous, sandy or below 1% organic matter. Cost: Dual $10.00-$20.00; Dual + AAtrex $12.00-$19.50; Dual + Bladex$13.26-$21.95.
or DUAL 25G*,**,***	6 lb	8 lb	10 lb	
DUAL/DUAL II*,**,***	1.3 pt	1.5 pt	1.75 pt	
+ AATREX DF*,**,***[3]	1.10 lb	1.38 lb	1.85 lb	
or BLADEX DF	0.83-1.1 lb	1.94 lb	2.2-2.4 lb	
DUAL	1.3 pt	1.5 pt	1.75 pt	PPSA or PRE — 3-way mix. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: $14.92-$23.33.
+ ATRAZINE DF	0.55 lb	0.55 lb	0.69 lb	
+ BLADEX DF	0.55 lb	1.1 lb	1.38 lb	
ERADICANE 6.7E*,**,***	4.75 pt	5 pt	5 pt	PPI — Apply treatments to dry surface soil and immediately incorporate by cross tandem discing or similar soil mixing. Injury may occur with Bladex on soils that are calcareous, sandy or below 1% organic matter. See page 51 for shattercane control. Repeated use of Eradicane will lead to reduced weed control. Consider crop rotations. Cost: Eradicane $14.00; Eradicane + Atrazine $18.79; Eradicane + Bladex $21.31.
ERADICANE 6.7E*,**,***	5.25 pt	5.3 pt	5.5 pt	
+ ATRAZINE DF*,**,***	1.1 lb	1.33 lb	1.77 lb	
or BLADEX DF	1.1 lb	1.77 lb	2.2 lb	
EXTRAZINE II DF*,**,***	1.66 lb	3.05 lb	4.16 lb	PPSA, PRE, or EARLY POST — Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: Extrazine $6.23-$12.28; Extrazine + Dual or Lasso $19.08-$25.20.
EXTRAZINE II DF	1.38 lb	1.94 lb	2.50 lb	
+ DUAL/DUAL II	1.3 pt	1.75 pt	1.75 pt	
or LASSO 4EC	2 qt	2 qt	2 qt	

[a]Rate required poses risk of groundwater contamination.

Field Corn, Popcorn*, Sweet Corn**, and Silage***

Tilled Seedbed, continued

(See Weed Response Chart on page 9 before selecting herbicides)	Herbicide Commercial product per Acre Sandy Loam <1% OM	Silt Loam 1-2% OM	Silty-Clay Loam > 2% OM	Application Time, Remarks and Approximate Cost/A Broadcast
FRONTIER***	16 oz	20 oz	22 oz	PPSA, PRE or PPI. Cost: Frontier $13.50-$18.56: Frontier + Atrazine $15.12-$22.42.
FRONTIER***	14 oz	18 oz	20 oz	
+				
ATRAZINE DF*	1.10 lb	1.38 lb	1.85 lb	
LASSO*,**,***	Do not use[a]	2.5 qt	3 qt	PPSA, PRE, or SURFACE MIX. Cost: $16.07-$19.80.
or				
LASSO II*,**,***		17 lb	20 lb	
LASSO*,**,***	2 qt	2 qt	2.25 qt	PPSA, PRE, or SURFACE MIX, Cost: Lasso + Atrazine $16.17-$19.81; Lariat $14.41-$16.82.
+				
AATREX/ATRAZINE DF*,**,***	1.1 lb	1.33 lb	1.77 lb	
LARIAT*,**,***	3.0 qt	3.2 qt	3.5 qt	
LASSO	2 qt	2 qt	2 qt	PPSA, or PRE — Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: $18.69-$24.13.
+				
BLADEX DF	1.1 lb	1.88 lb	2.2 lb	
LASSO 4EC	2 qt	2 qt	2 qt	PPSA or PRE — 3-way mix. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Cost: $17.43-$22.26
+				
ATRAZINE DF	0.55 lb	0.55 lb	0.69 lb	
+				
BLADEX DF	0.55 lb	1.1 lb	1.38 lb	
PROWL (3.3)	Do not use	1.8 qt	1.8 qt	PRE — Corn injury may occur if replanting is necessary. Rainfall shortly after planting required for performance. See page 53 for wild proso millet. Cost: Prowl + Bladex $23.47-$25.07; Prowl + Atrazine $17.40-$18.73.
+				
ATRAZINE DF		1.33 lb	1.77 lb	
or				
BLADEX DF		1.88 lb	2.2 lb	
SUTAN+ 6.7E	5 pt	5 pt	5 pt	PPI — Apply treatments to dry surface soil and immediately incorporate by cross tandem discing or similar soil mixing. Repeated use will lead to reduced weed control. Cost: $12.92.
SUTAN+ 6.7E*	3.75 pt	3.75 pt	3.75 pt	PPI — Apply treatments to dry surface soil and immediately incorporate by cross tandem discing or similar soil mixing. Increase rates for sandbur and shattercane control. Injury may occur with Bladex on soils that are calcareous, sandy or below 1% organic matter. Repeated use of Sutan will lead to reduced weed control. Cost: Sutan + atrazine $13.01-$15.04; Sutan + Bladex $15.53-$21.37; Sutazine $13.39-$15.62.
+				
ATRAZINE DF*	1.1 lb	1.33 lb	1.77 lb	
or				
BLADEX DF**	1.1 lb	1.94 lb	2.2 lb	
SUTAZINE+*	6 pt	7 pt	7 pt	
SUTAN+ 6.7E*,**,***	3.75 pt	3.75 pt	3.75 pt	PPI — Tank mix. Apply to dry surface soil. Incorporate immediately by cross tandem discing or equivalent soil mixing. Increase rates for sandbur and shattercane control. Injury may occur on soils that are calcareous, sandy or below 1% organic matter. Repeated use of Sutan will lead to reduced weed control. Cost: Sutan + atrazine + Bladex $14.27-$19.10; Sutan + Extrazine II $15.92 -$19.62.
+				
ATRAZINE DF*	0.55 lb	0.55 lb	0.69 lb	
+				
BLADEX DF*	0.55 lb	1.1 lb	1.38 lb	
or				
EXTRAZINE II DF	1.38 lb	1.94 lb	2.2 lb	

[a]Rate required poses risk of groundwater contamination.

Postemergence

Herbicide	Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
AATREX/*,**,***[2] ATRAZINE DF	1.4-2.2 lb	Broadleaf weeds 2-6"; grass weeds 1" or less	Add 1 qt/A COC with Atrazine. Lower atrazine rate controls broadleaf weeds. Make applications when corn is less than 12" tall and weeds less than 1 1/2" tall. Cost: $5.26-$7.68.
ACCENT*	0.67 oz	Corn 4-20" broadcast, >20" use post directed Shattercane <4"-12" Broadleaf weeds <4"	Use with oil concentrate or surfactant. Do not use if Counter was applied to the crop. Do not use Beacon within 20 days of a planting or cultivation application of any organophosphate insecticide. Do not apply Accent 3 days before or 7 days after a foliar postemergence organophosphate insecticide. Do not apply Beacon within 10 days of a foliar postemergence organophosphate insecticide. Beacon may be applied at 0.38 oz followed by a second 0.38 oz treatment if required. Corn hybrids vary in tolerance. Use COC at 1 gal/100 gal of solution with Atrazine. Use nonionic surfactant with Banvel/Buctril Treatments at 1 qt /100 gal of solution. See Herbicide Resistance, page 5. Cost: Beacon/Accent alone $17.89-$19.04; Accent + Atrazine $24.49-$26.86; with Banvel $26.71-$31.57; with Buctril $28.82-$32.09.
ACCENT* + ATRAZINE 4L[2] or BANVEL or BUCTRIL	0.67 oz .75-1.5 qt or .5-1.0 pt or 1.0-1.5 pt		
BEACON*	0.76 oz		
BANVEL*	0.5-1 pt	Corn spike to 5"	Use higher rate only on silty clay loam soil containing more than 2 1/2% organic matter. Observe precautions regarding Banvel use near sensitive crops. Cost: Banvel $6.97-$11.63: Clarity $5.32-$10.64.
	0.5 pt	Corn 8-24"	
CLARITY***	0.5-1 pt	Corn spike to 5"	
BLADEX 80W or BLADEX 90DF	2.5 lb 2.2 lb	Grass weeds 1" or less; corn before 5-leaf stage	Use with water, vegetable oils or surfactants. Do not use on sand or loamy sand. Do not use Bladex 4L. Decrease rate if Bladex was used earlier. Cost: $11.68
BUCTRIL* with or without ATRAZINE[2]	1-1.5 pt 1 pt	Broadleaf weeds 2-6" tall; corn 3-leaf-12".	Contact herbicide. Thorough coverage, correct nozzles, pressure, spray volume, rate and weed size important. Cost alone: $6.56-$9.83; with atrazine $8.13-$11.40; Buctril + Atrazine $8.67-$11.40.
BUCTRIL + ATRAZINE[2]	2-3 pt		
BUCTRIL + BANVEL	1.0 pt 0.5 pt	Spike to 36" weeds 2-6 leaf	Later applications may cause brittleness and stalk breakage. Use lower rate when good growing conditions exist to reduce corn injury. Do not use Banvel within 1/2 mile of sugarbeets, fieldbeans, alfalfa, soybeans, gardens and ornamentals unless drop nozzles are used on corn over 8". Do not apply between June 20 and Sept. 1 if sensitive crops are nearby. Cost: 2,4-D $0.84-$2.69; 2,4-D + Banvel $5.07 Banvel $4.65; Banvel + Buctril $11.21
2,4-D AMINE (4)**,*** or 2,4-D LV ESTER (4)**,***	1-2 pt or 0.5-1 pt	When corn is small, over 8" use drop nozzles	
2,4-D AMINE (4) or ESTER (4) + BANVEL	0.25 pt 0.25 pt 0.5 pt		
EXTRAZINE II 4L[2]	1.25-2 qt	Grass weeds 1" or less, corn before 5-leaf stage	Use with water only. Do not use on sand or loamy sand. Decrease rate if Bladex was used earlier. Cost: $5.64-$9.03.
LADDOK*,**[2]	2.5 pt	Broadleaf weeds 2-4" high; corn less than 12".	Use with 1 qt crop oil concentrate or 1 gal 28% UAN, 20 gal water and 40 psi. Increase rate according to the label on weeds 3-8" tall. Cost: $8.45.
MARKSMAN*[2]	2-3 pt	Before corn exceeds 5-leaf stage	Observe precautions regarding Banvel use near sensitive crops specified above. Use 3 pt only on silty clay loam soil containing more than 2 1/2% organic matter. Cost: $6.38-$9.57.
PURSUIT*** + 28% UAN + SURFACTANT	4 oz 1-2 qt 2 pt/100 gal	Weeds 1-3" Shattercane up to 6"	For use in IR/IT CORN ONLY. Cost: $23.31.
SENCOR 75DF + BASAGRAN	1.5-2 oz 0.5-1 pt	Broadleaf weeds 2-4" high	Use 1 gallon 28% UAN. Cost: $7.08-$12.55.
TOUGH + ATRAZINE DF	1 pt 1.25-2.0 lbs	Broadleaf weeds 2-6"; grass weeds 1" or less Corn is less than 12" high	Add 1 qt/A COC. Cost: $14.60-$16.85.
DUAL*,**	1.5-3 pt	Layby	Apply after furrowing or final cultivation. Cost $11.93-23.85.

Postemergence, continued

Herbicide	Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
PROWL (3.3)	0.90-1.8 qt	Corn 4" to Layby	Cover brace roots by cultivation before application. Incorporate by tillage, irrigation or rain within a week. Cost: Prowl $6.60-$13.39.
TREFLAN	1.5-2.0 pt	Corn 2-leaf to layby	Incorporate with rainfall, sprinkler irrigation water or cultivate withn 24 hours. Cost: $6.21-$8.27.
TREFLAN EC + ATRAZINE 4L[2]	1.5-2.0 pt 1-1.5 qt	Corn 2-leaf to 12"	Incorporate with 1/2" rainfall, sprinkler irrigation water or cultivate within 24 hours of application. Cost: Treflan + atrazine $9.36-$13.02.

Harvest Aid

2,4-D LV ESTER (4)	1 qt	After dough stage	For control of sunflower, cocklebur, velvetleaf and other late broadleaf weeds. Only certain brands labeled for this use. Brittleness and kernel fill not affected if silks are dry. Cost: $3.38.

WEED RESPONSE TO SELECTED HERBICIDES

Sorghum-Grain and Forage*

Plant response may be altered by growing conditions, genetic variation in crops and weeds, soil type, pH, organic matter and rates of application. Ratings may vary from season to season and geographical areas within the state. Ratings apply when herbicides are used as suggested in this publication.

See pages 40-47 for additional problem weeds and their control.

Response Ratings:

Ratings are for light to moderate weed popluations, favorable conditions and weed growth stage as specified on product label. High weed populations, adverse conditions, or large weeds will reduce control.

E = Excellent (90-100%)
G = Good (75-90%)
F = Fair (50-75%)
P = Poor (10-50%)

Herbicide	Annual Morningglory	Barnyardgrass	B. Nightshade	Cocklebur	Crabgrass	Fall Panicum	Foxtail	Jimsonweed	Kochia	Kochia-Triazine Resistant	Lambsquarters	Pigweed	Ragweed	R. Thistle	Sandbur	Shattercane/Sorghum	Smartweed	Sunflower	Velvetleaf	W. Buckwheat	Crop Safety[a]	Recrop Inteval in Months, When Changing to Nonlabeled Crop[b]
Soil Applied Herbicides																						
AAtrex*/Atrazine	G	F	E	F/G	F	P	F/G	G	E	P	E	E	E	E	F	P	E	G	G	E	E	6-24
Bicep*/Bicep II* + Concep	G	E	E	F	G	G	E	G	E	P	E	E	E	G	F	P	G	G	F	G	G	6-24
Bullet	G	E	E	F	G	G	E	F	E	P	E	E	E	G	F	P	G	G	F	G	G	6-24
Dual* or Lasso + Seed Safener	P	E	G	P	E	E	E	P	P	P	G	G	F	P	F	P	P	P	P	P	G	2-18
Dual*or Lasso + Atrazine + Seed Safener	G	E	E	F	G	G	E	F	E	P	P	E	E	G	F	P	G	G	F	G	G	6-24
Dual or Lasso + Atrazine + Bladex + Seed Safener	G	G	E	F	G	G	E	F	E	P	G	G	G	G	F	P	G	F	F	G	F	6-24
Lariat + Seed Safener	G	E	E	F	G	G	E	F	E	P	E	E	E	G	F	P	G	G	F	G	G	6-24
Ramrod	P	G	P	P	G	G	E	P	P	P	F	G	P	P	P	P	F	P	P	F	E	1-2
Ramrod + Atrazine	G	G	G	F	G	F	E	F	E	P	E	E	G	G	P	P	G	G	F	G	G	6-24
Ramrod + Bladex	G	G	E	F	G	G	E	F	E	P	G	F	G	G	F	P	G	F	F	G	F	2-4
Postemergence Herbicides																						
Weed size influences performance - see label																						
AAtrex/Atrazine + COC	E	P	E	E	F	P	F	E	E	P	E	E	E	F	P	P	E	E	E	E	G	6-24
Banvel	E	P	G	E	P	P	P	F	G	G	G	G	G	E	P	P	E	G	F	E	F	1-2
Buctril	E	P	E	E	P	P	P	E	G	G	G	G	E	G	P	P	E	E	G	E	G	0
Buctril + Atrazine*	E	P	E	E	P	P	P	E	G	G	E	E	E	G	P	P	E	E	E	E	G	6-24
Laddok*	G	P	G	E	P	P	P	E	G	G	G	G	E	P	P	P	E	E	E	E	G	6-24
Marksman	E	P	E	E	P	P	P	G	G	G	E	E	E	G	P	P	E	E	E	G	G	6-24
Roundup-ropewicks, wipers, etc.[c]	-	-	-	G	-	-	-	G	F	G	F	G	G	F	-	E	G	F	F	G		0
2,4-D	E	P	F	E	P	P	P	G	F	F	G	G	G	E	P	P	P	G	F	P	F	1

[a]Crop varieties vary in their response to herbicides.

[b]Values will vary with soil texture, pH, organic matter, rainfall or irrigation, rotational crop and herbicide rate. For more information see NebGuide G83-637, *Herbicide Carryover.*

[c]Ratings for weeds tall enough for selective treatment.

*Registered for forage sorghum.

Sorghum-Grain and Forage*

No-Till

EPP treatments which include Bladex or Extrazine II may injure sorghum if the soil stays dry between application and planting. Delay planting until at least 10 days after a soaking rain following treatment. When the interval between herbicide application and planting is expected to be 28 days or more, split applications will generally give better control. If a split application was not made and planting is delayed, a preemergence treatment may be needed. If treatments are not applied until 14 days or less before planting, weeds will likely be emerged. Grasses should be 2 inches or less for control with atrazine, Bladex or Extrazine II. The addition of crop oil concentrate, nitrogen fertilizer or nonionic surfactant will increase control. If grasses are more than 2 inches tall, use Gramoxone Extra at 1.5 to 2.5 pt/A or Roundup at 1.0 to 1.5 pt/A plus X-77 at 1 qt/100 gal for Gramoxone Extra and 2 qt/100 gal for Roundup. Add 1.0 pt/A 2,4-D LV ester 4 lb/gal if broadleaf weeds are present and apply 7 days before planting.

	Commercial product per Acre				
Herbicide	Sandy Loam < 1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
Cool-Season Grass Sod (including bromegrass and bluegrass)					
ROUNDUP[1]	1-2 qt	1-2 qt	1-2 qt	Fall new growth	Use appropriate herbicide at planting. Cost: $11.54-23.09.
Alfalfa Clover Sod					
2,4-D LV Ester (4) + BANVEL followed by: appropriate herbicide at planting or early preplant	1 qt 0.5 pt	1 qt 0.5 pt	1 qt 0.5 pt	Apply in fall or Apr to alfalfa with 4" new growth	On dryland, moisture often not adequate for sorghum. 2,4-D + Banvel used to kill alfalfa. Don't plant sorghum for 30 days. If bromegrass or bluegrass is present add Roundup. Don't apply with UAN or triazine herbicides. Cost: $8.02.
Rye or Winter Wheat					
ATRAZINE 4L*[3] + GRAMOXONE EXTRA[1]	Do not use	2.0 qt 1.5-2.5 pt	2.0 qt 1.5-2.5 pt	Apply when rye and wheat are 4-10" tall and before sorghum emerges	On dryland moisture is often not adequate for sorghum. Use safened seed with Bronco. Cost: Atrazine + Gramoxone $12.08-$15.92; AAtrex + Bronco $23.93-$35.26.
AATREX 4L[3] + BRONCO	1.2 qt 3 qt	1.4 qt 4 qt	1.6 qt 4.5 qt		
Continuous Row Crop[4]					
AATREX 4L*[3]	Do not use	2.0 qt	2.0 qt	Apr. 1-15	Use Bladex treatments west of Hwy. 281. Avoid over 0.8 lb/A Atrazine on sandy soils, eroded soils and soils with pH greater than 7.2. Add Gramoxone Extra[1] or Roundup if emerged grass weeds are over 2". If only broadleaf weeds are present add 2,4-D LV ester 1 pt/A. For volunteer corn or sorghum use Roundup[1] at 0.75-1 pt/A in 5 gpa of water prior to planting. If weed population was high last year, use a preemergence herbicide at planting. With Bladex delay planting until at least 10 days after a soaking rain after treatment. Cost: AAtrex $6.31 : Bladex + Atrazine $8.20-$17.99.
BLADEX 90DF + ATRAZINE 4L	1.3 lb[c] 0.6 qt	1.7 lb 0.8 qt	2.2 lb 1 qt	14 days EPP	
	1.8 lb 0.8 qt	2.2 lb 1 qt	2.6 lb 1.2 qt	28 days EPP	
	2.2 lb 1 qt	2.6 lb 1.2 qt	2.9 lb 1.4 qt	35 days EPP	
DUAL*/DUAL II + AATREX 4L	Do not use	1.75 pt 1 qt	2 pt 1.5 qt	1-20 days preplant	Seed must be treated with Concep to protect from Dual and Bicep injury or Screen to protect from Lasso or Bullet. Atrazine and Bicep will damage sorghum on sandy and low organic matter soils. If weedy, add Gramoxone Extra at 1.5-2.0 pt. Cost: Dual + Atrazine $15.07-$20.63; Bicep $17.88-$19.51; Bullet $14.84-$19.79.
BICEP*/BICEP II	Do not use	2.2 qt	2.4 qt	Increase rate 20% for 20 + days preplant	
BULLET (Neb. State Label)	Do not use	3.0 qt	3-4 qt	0-7 days preplant	
ROUNDUP	1-2 pt	1-2 pt	1-2 pt	Prior to crop emergence	Add appropriate residual herbicide. If only broadleaf weeds are present, add 2,4-D LV ester at 1 pt/A. Can be used preplant. Cost: $5.77-$11.54.

[c]21 days preplant on sandy loam

Ridge Plant

In crops planted after mid-May, weeds can be expected to grow vigorously before planting. In a ridge plant system these weeds may become too large to uproot and smother unless control efforts are applied in late April or early May. Two approaches can be used to control these weeds. The first would be to select an early preplant treatment from the no-till section and apply by mid to late April. Since the planting operation will destroy this herbicide barrier, a second herbicide application over the row is required at planting. A split application of 2/3 rate applied preplant + 1/3 rate banded over the row at planting should be effective. Another strategy is to apply a postemergence herbicide such as Roundup or Gramoxone Extra to destroy weeds before growth exceeds 3 to 4 inches in height. Application is needed in late April to early May. Apply a preemergence herbicide at planting. In most cases the time interval from application of the preplant knockdown herbicide to planting should not exceed three to four weeks. Weeds such as kochia, horseweed, smartweed, and winter annuals will warrant early treatment. Lambsquarters, velvetleaf, and grasses will emerge early in some years. The key to successful weed control is timely application of the herbicides. Appropriate herbicides can be selected from the no-till and tilled seedbed sections for this crop.

	Commercial product per Acre				
Herbicide	Sandy Loam < 1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
ROUNDUP	1.5-2.0 pt	1.5-2.0 pt	1.5-2.0 pt	1-3 weeks preplant	Excellent on annual grasses less than 6" tall, good to excellent on broadleaves 6" or less. Cost: $8.66-$11.55.

Tilled Seedbed

	Commercial product per Acre			
Herbicide	Sandy Loam < 1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM	Remarks and Approximate Cost/A Broadcast
AATREX/ATRAZINE 4L*[3]	Do not use	2.0 qt	2.0 qt	EPP, PPSA, PP, PRE or SURFACE MIX — Preplant applications should be made only on fine textured soils. Cost: $6.31 .
BICEP*/BICEP II	Do not use	1.8 qt	2.2 qt	EPP, PPSA, PRE or SURFACE MIX — Seed must be Concep treated with Dual, Screen treated with Bullet. Do not use atrazine on sandy, high pH or calcareous soils. Rain may leach herbicides, especially Bladex and cause sorghum injury. Cost:Atrazine $6.31 Bicep $14.63-$17.88; Dual $11.93 -$15.90; Dual+ Atrazine + Bladex $17.38-$23.38; Bullet $14.84-$19.79.
DUAL*/DUAL II	1.5 pt	2 pt	2.5 pt	
or				
DUAL 25G	6 lb	8 lb	10 lb	
DUAL*/DUAL II	Do not use	1.5 pt	1.75-2 pt	
with				
AATREX/ATRAZINE 4L		1 qt	1.5 qt	
or with				
ATRAZINE 4L				
+		0.4 qt	0.5 qt	
BLADEX 4L		0.7 qt	0.9 qt	
BULLET (Neb. State Label)	Do not use	3.0 qt	3-4 qt	
LASSO	Do not use	2.5 qt	3 qt	PPSA, PRE or SURFACE MIX — Seed must be Screen treated. Do not use Atrazine on sandy, high pH or calcareous soils. Rain may leach herbicides, especially Bladex, and cause sorghum injury. Cost: Lasso + atrazine + Bladex $18.30-$21.41; Lasso + Atrazine/Lariat $12.85-$16.82; Lasso $16.07-$19.28.
LASSO	Do not use	2 qt	2.25 qt	
with				
ATRAZINE 4L		1 qt	1.25 qt	
or with				
ATRAZINE 4L		0.4 qt	0.5 qt	
+				
BLADEX 4L		0.7 qt	0.9 qt	
LARIAT	Do not use	3 qt	3.5 qt	
RAMROD FLOWABLE	4 qt	4 qt	4 qt	PRE—May cause skin irritation to applicator. Do not feed treated forage to dairy animals. Leaches on sandy soil. Cost: $16.34.
or				
RAMROD 20G	20 lb	20 lb	20 lb	
RAMROD FLOWABLE	Do not use	3 qt	3 qt	PRE —In southwest Nebraska hold atrazine rate to 0.75 qt. Rain may leach herbicides and cause sorghum injury or poor weed control. Do not feed treated forage to lactating dairy animals. Cost: Ramrod + Bladex $18.29; Ramrod + atrazine $16.19; Ramrod & atrazine Flowable $14.92.
+				
AATREX 4L		0.75-1 qt	1.25 qt	
RAMROD FLOWABLE	Do not use	5 pt	5 pt	
+				
BLADEX 4L		2.4 pt	2.7 pt	
RAMROD & ATRAZINE	Do not use	4 qt	4 qt	

Postemergence

Herbicide	Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
AATREX/ATRAZINE 4L*[2]	1.2 qt	Broadleaf weeds < 6" Sorghum < 12"	Use atrazine with 1 qt crop oil concentrate. Atrazine may give partial control of grass weeds under 1". Do not use atrazine on sand or loamy sand. Increase Laddok rate according to label on weeds 3-8" tall and apply with 1 qt crop oil concentrate or 1 gal UAN. Cost: Atrazine $4.85; Laddok $8.67.
LADDOK[2]	2.5 pt		
MARKSMAN[2]	2 pt	Sorghum 2-5 leaf. Broadleaf weeds 2"-4"	Cost: $6.38.
BANVEL*	0.5 pt	Sorghum 3-5 leaves	Observe label precautions when sensitive crops are nearby. Cost: $4.65.
2,4-D AMINE* (4)	1 pt	After sorghum is 5" tall. If over 10" use drop nozzles	Spraying 2,4-D before 5" stage may inhibit root development. Spraying 2,4-D without drop nozzles after 8" through early boot may inhibit head development; use drop nozzles after 8" for all Banvel treatments. Do not use 2,4-D from early boot through soft dough stage. Cost: 2,4-D $..84 $1.34; Buctril alone $6.55-$9.83; with Atrazine $8.12-$11.40, with Banvel $7.67-$14.48.
2,4-D LV ESTER* (4)	0.5 pt		
BUCTRIL alone or with ATRAZINE[2] or with BANVEL	1 -1.5 pt 1 pt 0.12-0.5 pt	Broadleaf weeds 2-6"; sorghum 3-leaf to 12"	
BUCTRIL + ATRAZINE[2]	2-3 pt	Sorghum 3-leaf to 12"	
BUCTRIL + ATRAZINE[2] + BANVEL	1.5-2.0 pt 0.12-0.25 pt	Sorghum 3-leaf to 12"	

Harvest Aid

CHLORATE 3 or LEAFEX-3	1.5-2 gal 1.5-2 gal	7-10 days before harvest	Desiccant. Products are sodium chlorate with a fire retardant. Good coverage required. Do not graze or harvest forage for 14 days after treatment. Cost: $5.25-$7.00.

WEED RESPONSE TO SELECTED HERBICIDES

Soybeans

Plant response may be altered by growing conditions, genetic variation in crops and weeds, soil type, pH, organic matter and rates of application. Ratings may vary from season to season and geographical areas within the state. Ratings apply when herbicides are used as suggested in this publication.

See pages 45-53 for additional problem weeds and their control.

Response Ratings:

Ratings are for light to moderate weed populations, favorable conditions and weed growth stage as specified on product label. High weed populations, adverse conditions, or large weeds will reduce control.

E = Excellent (90-100%)
G = Good (75-90%)
F = Fair (50-75%)
P = Poor (0-50%)

Herbicide	Annual Morningglory	Barnyardgrass	B. Nightshade	Cocklebur	Crabgrass	Fall Panicum	Foxtail	Jimsonweed	Kochia	Kochia-Triazine Resistant	Lambsquarters	Pigweed	Ragweed	R. Thistle	Sandbur	Shattercane/Sorghum	Smartweed	Sunflower	Velvetleaf	W. Buckwheat	Crop Safety[a]	Recrop Inteval in Months, When Changing to Nonlabeled Crop[b]
Soil Applied Herbicides																						
Canopy + Lasso or Dual	F	E	G	G	E	E	E	G	G	F	E	E	E	G	F	P	G	G	G	E	G	4-18
Canopy/Preview	F	P	F	G	P	P	P	G	G	G	E	E	E	G	P	P	G	G	G	E	G	4-18
Canopy + Treflan or Sonalan or Prowl	F	E	F	G	E	E	E	G	G	G	E	E	E	G	G	G	G	G	G	E	G	4-18
Command	-	G	-	F	G	G	G	F	G	E	G	P	F	-	G	G	F	-	E	-	E	6-12
Command + Canopy	F	G	F	G	G	G	G	G	E	E	E	E	E	G	G	G	G	G	E	G	-	4-18
Command + Treflan or Sonalan or Prowl	P	E	G	F	E	E	E	G	E	E	E	G	G	-	G	G	E	F	E	-	E	9-18
Commence	P	E	F	F	E	E	E	G	E	E	E	G	G	-	G	G	E	F	E	-	E	9-18
Dual/Dual II	P	E	G	P	E	E	E	P	P	P	G	G	F	P	F	P	P	P	P	P	E	4-18
Dual + Sencor/Lexone or Turbo	P	E	G	F	E	E	E	G	F	P	E	E	E	G	F	P	G	F	G	E	F	4-18
Freedom	P	E	G	P	E	E	E	P	F	F	G	G	G	P	F	F	P	P	P	P	E	5-18
Frontier	P	E	G	P	E	E	E	P	P	P	G	G	G	P	F	P	P	P	P	P	E	2-4
Lasso/Micro-Tech	P	E	G	P	E	E	E	P	P	P	G	G	G	P	F	P	P	P	P	P	E	2-4
Lasso + Sencor/Lexone	P	E	G	F	E	E	E	G	F	P	E	E	E	G	F	P	G	F	G	E	F	4-18
Lorox + Lasso or Dual	P	E	G	F	E	E	E	F	F	F	G	E	G	F	F	P	G	F	F	G	G	4-18
Partner	P	E	G	P	E	E	E	P	P	P	G	G	G	P	F	P	P	P	P	P	E	2-4
Preview + Lasso or Dual	F	E	G	G	E	E	E	G	G	F	E	E	E	G	F	P	G	G	G	E	G	4-18
Preview + Treflan or Sonalan or Prowl	F	E	F	G	E	E	E	G	G	G	E	E	E	G	G	G	G	G	G	E	G	4-18
Prowl	P	E	P	P	E	E	E	P	G	G	G	G	P	G	G	F	P	P	F	P	G	4-18
Prowl + Sencor/Lexone	P	E	P	F	E	E	E	G	G	G	E	E	E	E	G	F	G	F	G	E	F	4-18
Pursuit	P	P	F	F	P	P	P	G	G	G	F	E	E	-	P	G	E	E	E	-	E	4-26
Pursuit Plus	P	E	F	F	E	E	E	G	G	G	E	E	E	-	G	G	E	E	E	-	E	4-26
Pursuit + Dual	P	E	G	F	E	E	E	G	G	G	G	E	E	-	F	G	E	E	E	-	E	4-26
Salute	P	E	P	F	E	E	E	G	G	F	E	E	E	E	G	G	G	F	G	E	F	4-18
Scepter + Dual or Lasso	P	E	G	G	E	E	E	G	F	F	E	E	E	-	F	F	E	E	G	-	E	4-26
Scepter + Prowl, Sonalan or Treflan	P	E	F	G	E	E	E	G	G	G	E	E	E	-	G	G	E	E	G	-	E	4-26
Sonalan	P	E	F	P	E	E	E	P	G	G	G	G	P	G	G	G	P	P	P	P	G	4-13
Sonalan + Sencor/Lexone	P	E	F	F	E	E	E	G	G	G	E	E	E	E	G	F	G	F	G	E	F	4-18
Squadron	P	E	F	G	E	E	E	G	G	G	E	E	E	-	G	G	E	E	G	-	E	4-26
Split-Appl.-Treflan/Trifluralin or Prowl + Sencor/Lexone	P	E	P	F	E	E	E	G	G	F	E	E	E	E	G	G	E	F	E	E	G	4-18
Treflan	P	E	P	P	E	E	E	P	G	G	G	G	P	G	G	G	P	P	P	P	G	5-18
Treflan/Trifluralin + Sencor/Lexone	P	E	P	F	E	E	E	G	G	G	E	E	E	E	G	G	G	F	G	E	F	4-18
Treflan + Sencor/Lexone + Command	P	E	G	F	E	E	E	G	G	G	E	E	E	G	G	G	G	F	E	E	G	9-16
Postemergence Herbicides																						
Weed size influences performance —see label																						
Assure/Assure II	P	E	P	P	E	E	G	P	P	P	P	P	P	P	E	E	P	P	P	P	E	4
Basagran + Blazer or Galaxy	G	P	G	E	P	P	P	E	P	P	F	G	E	P	P	P	E	E	G	G	E	0
Basagran + Cobra	G	P	G	E	F	G	F	E	F	F	F	E	E	P	F	F	E	E	G	G	G	0
Basagran + Scepter	F	P	P	E	P	P	P	E	P	P	P	E	G	P	P	P	E	E	E	G	G	4-26
Basagran	F	P	P*	E	P	P	P	E	G	G	P	P	G	G	P	P	E	E	G	G	E	0
Blazer	E	P	G	F	F	F	F	E	F	F	F	E	E	F/G	F	F	E	P	F	-	G	0
Classic	G	P	-	E	P	P	P	E	F	F	F	G	E	-	P	P	E	E	G	-	G	3-15
Cobra	G	P	G	G	F	F	F	E	F	F	F	E	E	P	F	F	G	G	G	-	F	0
Fusilade	P	E	P	P	E	E	G	P	P	P	P	P	P	P	E	E	P	P	P	P	E	2
Fusion/Select	P	E	P	P	E	E	G	P	P	P	P	P	P	P	E	E	P	P	P	P	E	4
Pinnacle + Classic	G	P	P	E	P	P	P	E	F	F	E	E	E	G	P	P	E	E	G	E	F	3-9
Poast	P	E	P	P	E	E	G	P	P	F	P	P	P	P	E	E	P	P	P	P	E	0
Poast, + Basagran	F	E	P	E	G	E	G	E	P	P	P	P	G	P	E	E	G	E	G	G	E	0
Pursuit	G	G	G	E	G	-	G	G	F	F	F	E	G	-	-	E	G	G	G	-	G	4-26
Roundup-ropewicks, wipers, etc.[c]	-	-	-	G	-	-	-	G	F	F	G	G	G	F	F	E	G	F	F	-	E	0

[a]Crop varieties vary in their response to herbicides.
[b]Values will vary with soil texture, pH, organic matter, rainfall or irrigation, rotation crop and herbicide rate. For more information see NebGuide G83-367, *Herbicide Carryover.*
[c]Ratings for weeds tall enough for selective treatment.
*Good control of hairy nightshade.

Soybeans

No-Till

GENERAL REMARKS

EPP treatments provide excellent early weed control. However, when the interval between herbicide application and planting is 28 days or more, split applications will generally give better control. If planting is delayed longer than planned after an EPP treatment, a preemergence treatment may be needed.

Herbicide (See Weed Response Chart on page 19 before selecting herbicides)	Commercial product per Acre: Sandy Loam <1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
No-Till in Alfalfa or Clover Sod					
2,4-D Ester LV(4)	1 qt	1 qt	1 qt	Apply in FALL to alfalfa with 4" new growth	Use appropriate residual herbicide at planting. 2,4-D + Banvel used to kill alfalfa. Cost: $8.02.
+					
BANVEL	0.5 pt	0.5 pt	0.5 pt		
Soybeans, No-Till in Cool-Season Grass Sod					
ROUNDUP	1-1.5 qt	1-1.5 qt	1-1.5 qt	Apply in FALL to new growth	Cost: $11.55-$17.32.
Soybeans, No-Till in Rye or Winter Wheat					
ROUNDUP	0.75-1 pt	0.75-1 pt	0.75-1 pt	Apply when rye and wheat are 4"-10" and before soybeans emerge	Follow with appropriate EPP treatment. Cost without EPP treatment: $4.33-$5.77.
Soybeans, No-Till Continuous Row Crops					
ROUNDUP	1.5-2.0 pt	1.5-2.0 pt	1.5-2.0 pt	15-30 days EPP	Cost: $8.66-$11.55.
ROUNDUP	1-2 pt	1-2 pt	1-2 pt	7-30 days EPP	Use appropriate herbicide at planting. 2,4-D at 1 pt, 7day/planting; at 2 pt, 30 days/planting. Cost $7.75-$14.92.
+					
2,4-D LV Ester (4)	1-2 pt	1-2 pt	1-2 pt		
LEXONE/SENCOR 75DF		0.83-1 lb	1-1.2 lb	15-30 days EPP	Do not use on soils with less than 1% OM. Use the lower rate for calcareous soils. Use a split application of 2/3 EPP, the remaining 1/3 at planting, especially if applied very early. Use higher rate for split application. Split applications cover soil disturbance by planter. If grasses are present add Roundup. Use higher rates of Roundup when combined with PRE or Prowl in POST treatment. 0-7 days pre-plant. EPP treatments may be less effective if rainfall does not occur within 7 days of application. Cost: with Dual $33.65-$51.17; with Micro-Tech $26.08-$34.73; with Partner $25.49-$34.14; with Prowl $21.96-$30.74; Turbo: $34.35-$140.35.
+					
DUAL/DUAL II		2.0 pt	2.5 pt		
or					
MICRO-TECH		2.5 qt	3 qt		
PARTNER		3.8 lbs	4.5 lbs		
or					
PROWL (3.3)	2.4 pt	3.0 pt	3.6 pt		
TURBO	2.25 pt	2.75 pt	3.25 pt		
PURSUIT	4 oz	4 oz	4 oz	15-30 days EPP	If emerged weeds are present add Roundup. Do not plant sorghum the following year. Cost: Pursuit + Dual $34.49-$38.46; Pursuit + Micro-Tech $31.63-$38.15; Pursuit Plus $23.76; Pursuit + Partner $33.11-$35.19.
+					
DUAL/DUAL II	1.5 pt	2.0 pt	2.5 pt		
or					
MICRO-TECH	2 qt	2.5 qt	3 qt		
or					
PARTNER	3.5 lbs	3.5 lbs	4.0 lbs		
PURSUIT PLUS	2.5 pt	2.5 pt	2.5 pt		
COMMAND	1.5-2 pt	1.5-2 pt	1.5-2 pt	0-30 days EPP	Do not use on soils with less than 0.5% OM. Use a split application of 2/3 of the Sencor/ Lexone early, the remaining 1/3 at planting if applied more than 14 days preplant. For Canopy/ Preview applications, see page 5 for herbicide resistance. If emerged weeds are taller than 2" add Roundup. Cost : Command + Lexone Sencor:$23.47-$39.38; Command + Canopy/ Preview $26.38-$35.96.
+					
LEXONE DF	0.33 lb	0.5-0.75 lb	0.5-0.75 lb		
or					
SENCOR DF	0.33 lb	0.5-0.75 lb	0.5-0.75 lb		
or					
CANOPY	5 oz	6 oz	7 oz		
or					
PREVIEW	6 oz	7 oz	8 oz		

Soybeans

No-Till, continued

Herbicide (See Weed Response Chart on page 19 before selecting herbicides)	Commercial product per Acre: Sandy Loam <1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
LEXONE/SENCOR 75DF		0.67 lb	0.83 lb	0-14 days EPP	Lorox should not be applied more than 5-7 days before planting. Add 0.25% surfactant or 1qt/A crop oil concentrate for better burndown of small weeds up to 1.5"-2". If emerged weeds are more than 2", add Gramoxone Extra or Roundup as discussed in the preemergence section. Split application is not necessary except if planter causes excessive soil disturbance. Do not apply on soils with less than 0.5% OM. Reduce Sencor/Lexone rate by 1/3 on calcareous soils. Do not apply Preview on soils with pH greater than 7.0; corn or grain sorghum should not be planted within 10 months of application. Cost: Lexone/Sencor with Dual $24.96 -$41.53; Lexone/Sencor with Lasso $26.08-$41.21; Lorox with Lasso $24.76-$37.60; Canopy/Preview with Dual $23.38-$35.19; Preview with Lasso $24.50-$26.85; Turbo: $21.71- $34.12.
or					
LOROX 50DF	1.3 lb	1.6 lb	2.0 lb		
or					
PREVIEW	6 oz	7 oz	8 oz		
or					
CANOPY	5 oz	6 oz	7 oz		
+					
DUAL/DUAL II	1.5 pt	2 pt	2.5 pt		
or					
LASSO/MICRO-TECH	2.0 qt	2.5 qt	3 qt		
TURBO	1.75 pt	2.5 pt	2.75 pt		
Soybeans, No-Till Continuous Row Crops					
BRONCO	3.25 qt	4.0 qt	4.0 qt	Preemergence at planting	Do not use on soils with less than 0.5% OM. Apply after planting, but before crop emergence. Apply in 10-30 gal/A spray solution. Add X-77 surfactant to 2 qt/100 gal spray solution. The addition of dry ammonium sulfate at 17 lb/100 gal solution may improve weed control under adverse growing conditions. Cost: Bronco + Lorox $33.54-44.90; Bronco + Lexone/Sencor $30.43-$44.33.
+					
LOROX 50DF	1.3 lb	1.6 lb	2 lb		
or					
LEXONE/SENCOR 75DF		0.5 lb	0.67 lb		
LEXONE/SENCOR 75DF	0.33 lb	0.5 lb	0.67 lb	Preemergence at planting	Do not use on soils with less than 0.5% OM. Add Gramoxone Extra at 1.5-2.5 pt/A or Round up at 1-1 5 pt/A. Add X-77 at 1 qt/100 gal spray solution. If using Roundup in the tank-mix, the addition of one 7 lb dry ammonium sulfate per 100 gal spray solution may increase the performance of Roundup. For tank-mixes with either Gramoxone Extra or Roundup use the lower rate for 4"-6" weeds. Control of weeds over 6" will be erratic. Apply in at least 20 gal/A to get thorough coverage. Rainfall within 3 to 5 days of herbicide application will improve weed control, especially with Prowl. When using tank-mixes with Lexone/Sencor, do not use on sand or loamy sand soils. Do not apply Preview on soils with pH greater than 7.0 Cost: without Gramoxone Extra or Roundup: Lexone/Sencor with Dual $20.53-$37.35; Lexone/Sencor with Lasso $21.65-$37.03; Lorox with Dual $23.64-$37.97; Lorox with Lasso $24.76-$37.60; Preview with Dual $23.38-$35.17; Preview with Lasso $24.50-$34.85; Turbo: $18.61-$31.02; Partner $12.45-$18.67.
or					
LOROX 50DF	1.3 lb	1 .6 lb	2 lb		
or					
PREVIEW	6 oz	7 oz	8 oz		
+					
DUAL/DUAL II	1.5 pt	2 pt	2.5 pt		
or					
MICRO-TECH/ PARTNER	2.0 qt 3.0 lbs	2.5 qt 3.8 lbs	3.0 qt 4.5 lbs		
TURBO	1.5 pt	2.25 pt	2.5 pt		

Ridge-Till

In crops planted after mid-May, weeds can be expected to grow vigorously before planting. In a ridge plant system these weeds may become too large to uproot and smother unless control efforts are applied in late April or early May. Two approaches can be used to control these weeds. The first would be to select an early preplant treatment from the no-till section and apply by mid to late April. Since the planting operation will destroy this herbicide barrier, a second herbicide application over the row is required at planting. A split application of 2/3 rate applied preplant + 1/3 banded over the row at planting should be effective. Another strategy is to apply a postemergence herbicide such as Roundup or Gramoxone Extra to destroy weeds before growth exceeds 3 to 4 inches in height. Application is needed in late April to early May. Apply a preemergence herbicide at planting. In most cases the time interval from application of the preplant knockdown herbicide to planting should not exceed three to four weeks. Weeds such as kochia, horseweed, smartweed, and winter annuals will warrant early treatment. Lambsquarters, velvetleaf, and grasses will emerge early in some years. The key to successful weed control is timely application of the herbicides. Appropriate herbicides can be selected from the no-till and tilled seedbed sections for this crop. Apply Roundup at 1.0 to 2.0 pts/A, 1-3 weeks preplant. Cost: $5.77-$11.54

Tilled Seedbed

Herbicide (See Weed Response Chart on page 19 before selecting herbicides)	Commercial product per Acre: Sandy Loam <1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM	Remarks and Approximate Cost/A Broadcast
For cocklebur, sunflower and velvetleaf, see Troublesome Weeds and Woody Plants				
COMMAND	0.75 pt	0.75 pt	0.75 pt	PPI with Treflan and Sonalan. PPI or SURFACE MIX with Prowl. SURFACE MIX or PRE with Dual or Lasso. To reduce injury on calcareous soil, reduce Sencor/Lexone rate by 1/3. Command vapor or droplet drift may damage green vegetation. Treflan and Sonalan may be applied to untilled residue prior to incorporation. Cost: Command alone $7.43; with Prowl or Treflan $12.68-$17.19; with Sonalan $15.50-$19.53; with Dual or Lasso $20.28-$23.50.
SENCOR	0.33 lb	0.40 lb	0.5 lb	
with				
TREFLAN	1 pt	1.5 pt	2 pt	
or				
SONALAN	2 pt	2.5 pt	3 pt	
or				
PROWL (3.3)	1.8 pt	2.4 pt	2.4 pt	
or				
DUAL/DUAL II	1.5 pt	1.5 pt	2 pt	
or				
LASSO	2 qt	2.5 qt	2.5 qt	
COMMAND	0.75 pt	1.2 pt	1.5 pt	PPI with Treflan, Sonalan and Commence. Surface mixed or PRE with Lasso. Use 2.5 qt rate of Lasso for heavy infestation of pigweed and lambsquarters. Command vapor drift may damage green vegetation. Carryover may damage wheat seeded the same fall or sugarbeets and fieldbeans the next year. Treflan and Sonalan may be applied to untilled residue. Cost: Command + Treflan $11.56-$23.13; Command + Sonalan $15.50-$26.96; Command + Lasso $22.75; Commence $14.06-$21.38; Command + Canopy $26.38-$35.95.
+				
TREFLAN	1 pt	1.5 pt	2 pt	
or				
SONALAN	2 pt	2.5 pt	3 pt	
COMMAND	1 pt	1 pt	1 pt	
+				
LASSO 4EC	2 qt	2 qt	2 qt	
COMMAND	1.5-2.0 pt	1.5-2.0 pt	1.5-2.0 pt	
+				
CANOPY	5 oz	6 oz	7 oz	
COMMENCE	1.75-2 pt	2-2.25 pt	2.66 pt	
DUAL/DUAL II	2 pt	2 pt	2.5 pt	EPP, PRE, SURFACE MIX...To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Cost: Dual $15.90-$19.88; Dual + Sencor $24.97-$31.54.
or				
DUAL 25G	8 lb	8 lb	10 lb	
DUAL/DUAL II	Do not use	1.5 pt	2 pt	
+				
SENCOR/LEXONE DF		0.5 lb	0.6 lb	
FREEDOM	3.5 qt	3.5 qt	4 qt	PPI into the upper 2 inches of soil within 24 hours after application. To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Cost: Freedom $10.47-$11.96; Freedom + Sencor/Lexone $16.67-$21.11.
FREEDOM	Do not use	2.7 qt	2.7 qt	
+				
SENCOR/LEXONE	Do not use	0.33 lb	0.5 lb	
LASSO 4EC/ MICROTECH	2.5 qt	2.5 qt	2.5 qt	PRE, SURFACE MIX...To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Cost: Lasso $16.07; Lasso + Sencor/ Lexone $25.83-$28.42; Partner $14.52.
or				
LASSO II 15G	17 lb	17 lb	17 lb	
PARTNER	3.5 lb	3.5 lb	3.5 lb	
LASSO	Do not use	2 qt	2 qt	
+				
SENCOR/LEXONE DF[6]		0.5 lb	0.6 lb	
LOROX 50DF	1.3 lb	1.6 lb	2 lb	PRE...Do not use on soils with less than 0.5% OM. Cost: Lasso + Lorox $24.57-$30.89; Dual + Lorox $27.62-$33.94.
with				
DUAL/DUAL II	1.5 pt	1.5 pt	2 pt	
or with				
LASSO 4EC	4 pt	4 pt	4 pt	

Soybeans

Tilled Seedbed, continued

Herbicide (See Weed Response Chart on page 19 before selecting herbicides)	Commercial product per Acre: Sandy Loam <1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM	Remarks and Approximate Cost/A Broadcast
PREVIEW	6 oz	7 oz	8 oz	PPI with Treflan and Sonalan. PPI or SURFACE MIX with Prowl. PRE or SURFACE MIX with Dual or Lasso. Rainfall required to activate all treatments. Do not apply to soils with pH greater than 6.8 or organic matter less than 0.5%. Carryover injury may result, see label for recropping restrictions. Treflan and Sonalan may be applied to untilled residue. Cost: Canopy or Preview + Prowl or Treflan or Sonalan $16.71-$29.72; Preview + Dual or Lasso or Freedom $19.53-$31.19.
or				
CANOPY	5 oz	6 oz	7 oz	
with				
TREFLAN	1 pt	1.5 pt	2 pt	
or				
SONALAN	2 pt	2.5 pt	3 pt	
or				
PROWL (3.3)	1.8 pt	2.4 pt	2.4 pt	
or				
DUAL/DUAL II	1.5 pt	1.5 pt	2 pt	
or				
LASSO	2 qt	2 qt	2 qt	
or				
FREEDOM	2.7 qt	2.7 qt	3.5 qt	
PROWL (3.3)	1.8 pt	2.4 pt	3.0 pt	PPI or SURFACE MIX.. To reduce injury on calcareous soil decrease Sencor/Lexone rates by 1/3. Lexone not labeled on sandy soil. Cost: Prowl $6.70-$10.78; Prowl + Sencor $15.30-$24.57.
PROWL (3.3)	Do not use	2.4 pt	2.4 pt	
+				
SENCOR/LEXONE DF[6]	Do not use	0.5 lb	0.6 lb	
PROWL (3.3)	1.8 pt	2.4 pt	2.4 pt	SPLIT SHOT, PPI and PRE — Improves broadleaf control. For best results immediately incorporate first application. On calcareous soils reduce Sencor/Lexone rates by 1/3. Lexone not labeled on sandy soil. Cost: Prowl + Sencor/Lexone + Sencor/Lexone $14.53-$27.18; Treflan/Trifluralin + Sencor/Lexone + Sencor/Lexone $13.08-$28.01; Prowl Sencor/Lexone + Prowl + Sencor/Lexone $22.11-$36.10.
or				
TREFLAN/TRIFLURALIN (PPI) with	1 pt	1.5 pt	2 pt	
SENCOR/LEXONE DF[6] PPI followed by	0.2 lb	0.4 lb	0.5 lb	
SENCOR/LEXONE DF[6] PRE Split application	0.1 lb	0.2 lb	0.2 lb	
PURSUIT PLUS	2.5 pt	2.5 pt	2.5 pt	SURFACE MIX—Do not plant sorghum the following year. Cost: $23.76.
SCEPTER	0.67 pt	0.67 pt	0.67 pt	PRE or SURFACE MIX with Lasso or Dual. PPI Prowl or Squadron 7 days, Treflan or Freedom 1 day, or Sonalan 2 days after application. Crop injury and carryover risk may increase on high pH soils or sandy, eroded soils. Carryover from over application may injure corn and sugar beets the following year. Scepter and Squadron labeled east of Highway 81. Do not plant corn the year following a Scepter or Squadron treatment north of Highway 34 unless IR/IT corn is used. Cost: Scepter + Lasso $30.83; Scepter + Freedom $25.45; Scepter + Dual $29.90-$33.88; Scepter + Prowl or Sonalan or Treflan $23.23-$31.57; with Sencor, add $8.00.
(with or without SENCOR)	Do not use	(0.33 lb)	(0.50 lb)	
with				
LASSO	2 qt	2 qt	2 qt	
or				
DUAL/DUAL II	1.5 pt	1.5 pt	2 pt	
or				
PROWL (3.3)	1.8 pt	2.4 pt	2.4 pt	
or				
TREFLAN	1.0 pt	1.5 pt	2 pt	
or				
FREEDOM	2.5 qt	2.5 qt	2.5 qt	
or				
SONALAN	2 pt	2.5 pt	3 pt	
SONALAN	2 pt	2.5 pt	3 pt	PPI — Incorporate within 48 hours. To reduce injury on calcareous soil reduce Sencor/Lexone rate by 1/3. Increase Sonalan rate by 1/2-1 pt for black nightshade control. Sonalan may be applied to untilled residue. Cost: Sonalan $8.07-$12.11; Sonalan + Sencor/Lexone $16.63-$27.67
SONALAN	Do not use	2.5 pt	3 pt	
+				
SENCOR/LEXONE DF[c]	Do not use	0.5 lb	0.6 lb	
TREFLAN/TRIFLURALIN	Do not use	1 5 pt	2 pt	PPI — For best results immediately incorporate. To reduce injury on calcareous soil decrease Sencor/Lexone rate by 1/3. Do not use Salute on calcareous soil. Treflan and Sonalan may be applied to untilled residue. Costs: Treflan/Trifluralin $4.14-$8.28; Treflan/Trifluralin + Sencor/Lexone/Salute $12.70-$23.85; Treflan/Trifluralin + Salute $16.50-$33.00.
+				
SENCOR/LEXONE DF[4]	Do not use	0.5 lb	0.6 lb	
SALUTE	1.5 pt	2.25 pt	3.0 pt	
TURBO 8EC	Do not use	2.0 pt	2.5-2.75 pt	Do not use Turbo on calcareous soil. Turbo also labeled split-shot with additional Turbo or Sencor and tank mix with Command or Scepter. Follow label directions. Cost: Turbo $24.81-$34.12.

Soybeans

Postemergence

Herbicide	Rate Per Acre	Application Time	Remarks and Approximate Cost Per Acre
ASSURE II	7-8 oz	Grasses 4" Shattercane and Corn 12"-18"	COC or surfactant needed for effective control. Cost: $7.84-$8.96.
BASAGRAN + 28% UAN	1-2 pt 1 qt	Broadleaf weeds less than 4" tall	Combining Basagran with Poast reduces effectiveness on volunteer corn and shattercane. Split applications of Basagran at 1 pt/A may improve control of several weeds. See label for and specific weed size. Cost Basagran $8.75 -$16.82; Basagran + Blazer $12.35 -$24.07; Basagran + Cobra $18.64-$32.22; Basagran + Pinnacle $16.36-$24.43; Basagran + Scepter $17.96-$26.03; Basagran + Poast $24.24-$28.27.
BASAGRAN with BLAZER + 28% UAN or COBRA + 28% UAN + SURFACTANT or PINNACLE or SCEPTER + COC	1-2 pt 0.5-1 pt 1 gal 6-12.5 oz 2 pt/100 gal .25 oz 0.33 pt 1 qt		
BASAGRAN + POAST PLUS + DASH + 28% UAN	1.5-2 pt 18-24 oz 1 qt 1 gal	Use Basagran and Poast guidelines	See label for rates and weed size. Cost: $6.84-$9.12.
BLAZER + 28 % UAN	1-2 pt 1 gal	Most weeds less than 4" tall	See label for rates and specific weed size. Cost: $7.90-$15.12.
CLASSIC + SURFACTANT or COC	0.5-0.75 oz 1 qt/100 gal 1 gal/100 gal	Most weeds less than 4" tall	Do not use Classic on soils above pH 7.2. Use COC only during drought conditions. Add 1 gal. of 28% UAN for velvetleaf. Cost: Classic $17.68-$22.22; Classic/Pinnacle $14.67.
CLASSIC + PINNACLE + SURFACTANT + 28% UAN	0.25 oz 0.25 oz 1 pt/100 gal 1 gal		
COBRA + SURFACTANT or COC	10-12.5 oz 1-1.5 pt/100 gal 0.5-1 pt/A	Most weeds 2-4" tall	Do not use during periods of stress or weed control will be poor. See label for specific weed size. Cost: $11.63-$15.29.
FUSION	6 oz	Grasses 4" Shattercane and corn 12-18"	COC or surfactant needed for effective control. Cost: $6.71.
GALAXY + 28% UAN	2 pt 1 gal	Most weeds less than 4" tall	See label for specific weeds. Cost: $14.91.

Soybeans

Postemergence, continued

Herbicide	Rate Per Acre	Application Time	Remarks and Approximate Cost Per Acre
POAST PLUS + COC	18-24 oz 2 pt	Grasses 4" Shattercane and corn 12-18"	COC or surfactant needed for effective control. Cost: $7.86-$10.13.
PURSUIT + 28% UAN + SURFACTANT	4 oz 1-2 qt 2 pt/100 gal	Weeds 1-3" Shattercane up to 6"	Do not plant sorghum the following year. Add Select to improve control of volunteer corn. Cost: $23.32.
SELECT	6 oz	Grasses 4" Shattercane & corn up to 6"	Use COC. Cost: $9.57.

Harvest Aid

GRAMOXONE EXTRA	12.8 oz	When 65% of pods are brown	Desiccant. Follow label directions on water volume and X-77 additive. Be careful of drift. Do not graze for 15 days. Cost: $3.07.
ROUNDUP	1 qt	Pods no longer green	Apply 1 qt by air; no more than 6 qt per season. Allow 7 days interval from application to harvest. Do not graze for 25 days. Cost: $11.55

Bean Bar/Wiper Applications

Crop	Applicator	Herbicide and Ratio-(product:water)	Remarks
Soybeans and Sorghum	1. Ropewicks	ROUNDUP 1:2 (33.3% concentration)	Works best on volunteer corn and shattercane. Weeds should be 10-12" taller than soybeans. Travel both directions in heavy stands. In sorghum, too wet or dripping ropes will cause droplet splash and crop injury.
Soybeans	2. Bean Bar—straight stream nozzles	ROUNDUP 1:19 (5% concentration)	A marking dye can be added to the spray solution so it is easier to see treated plants.
Soybeans	3. Bean Bar—spreading nozzle	BASAGRAN 1:100 (1% concentration)	Complete coverage essential. Add I gal nitrogen fertilizer to each 25 gal spray. Add Poast and COC for shattercane and volunteer corn.
		CLASSIC + PINNACLE 0.5 oz + 0.5 oz per 25 gal water	Add 1 qt COC + 1 gal 28-0-0 per 25 gal.
		POAST, FUSILADE or ASSURE 1:100 (1% concentration)	Add 1 qt crop oil conc. or 1/2 pt adjuvant per 25 gal mix. Pre-harvest, intervals: Poast, 90 days; Fusilade, pre-bloom; Assure, 80 days.

Herbicide costs per acre vary from $1.00 with light weed infestations to $15.00 in heavy infestations.

Weed Response to Postemergence Herbicides

Small grain

Response ratings:
Ratings are for light to moderate weed populations, favorable conditions and weed growth stage as specified on product label. High weed populations, adverse conditions, or large weeds will reduce control.
E = Excellent (90-100%)
G = Good (75-90%)
F = Fair (50-75%)
P= Poor (10-50%)

Herbicide	Blue Mustard	Knotweed	Field Pennycress	Horseweed	Kochia	Lambsquarters	P. Smartweed	Prostrate Pigweed	Redroot Pigweed	R. Thistle	Shepherdspurse	Sunflower	Tansy Mustard	Velvetleaf	Wild buckwheat	Prickly Lettuce	Wild Vetch	Crop Safety[a]	Recrop Interval in Months, When Changing to Nonlabeled Crop[b]
Ally + 2,4-D	E	F	E	-	E	E	F	E	E	G	E	G	E	G	G	E	F	G	1-34
Amber + 2,4-D	E	F	E	F	E	E	F	E	E	G	E	E	E	G	G	E	F	E	0-36
Banvel + 2,4-D	F	G	E	F	E	E	E	E	E	E	E	E	E	G	G	G	G	F	1-2
Bronate	F	E	E	F	F	E	F	E	G	G	E	E	G	G	E	-	G	E	1
Buctril	G	E	E	G	F	G	G	F	G	G	E	E	G	E	E	G	F	E	1
Buctril + 2,4-D	G	E	E	F	G	E	E	E	E	E	E	E	E	E	F	E	G	G	1
Curtail	E	E	E	E	G	E	E	E	E	G	E	E	E	E	E	E	E	G	2-4
Harmony Extra	E	F	E	-	G	E	G	E	E	G	E	G	E	G	F	E	F	G	2
MCPA	F	P	G	P	F	G	F	F	F	F	G	F	G	G	P	F	F	E	1
Tordon + 2,4-D	G	F	E	F	F	E	G	E	E	G	E	E	E	E	E	E	G	G	1 1/2-32
2,4-D	E	F	E	F	F	E	G	E	E	G	E	E	E	E	P	E	G	G	1

[a]Crop varieties vary in their response to herbicides. Applying herbicides with liquid fertilizer may increase crop injury.
[b]Values will vary with soil texture, pH, organic matter, rainfall or irrigation, rotational crop and herbicide rate. For more information see NebGuide G74-180, *Herbicide Carryover.*

BARLEY AND SPRING WHEAT

Herbicide	Rate Per Acre3	Application Time	Remarks and Approximate Cost/A Broadcast
ALLY + 2,4-D LV ESTER (4)	0.10 oz + 0.5 pt	Spring before May	Follow with small grain on Curtail and Amber treated fields. For wild buckwheat use Buctril as listed for winter wheat. For Amber + 2,4-D and Ally + 2,4-D, add surfactant 1 pt/100 gallons of spray solution. Cost: 2,4-D $0.84-$2.02; Ally + 2,4-D $3.69; Amber + 2,4-D $3.50-$3.92; Curtail $8.48.
AMBER + 2,4-D LV ESTER (4)	0.28 oz + 0.25-.50 pt	Spring before jointing	
CURTAIL	2 pt	Spring during tillering	
2,4-D AMINE (4) or 2,4-D LV ESTER (4)	1-1.5 pt or 0.5-0.75 pt	Spring 5-leaf to joint stage	

Harvest Aid

2,4-D LV ESTER (4)	1 qt	Hard dough 7 or more days before harvest	Helps desiccate large broadleaf weeds. Only certain brands labeled for this use. Cost: $3.38.
ALLY + 2,4-D LV Ester (4)	0.1 oz + 4-8 oz	After dough stage	Preharvest interval of 20 days. Add surfactant at 1 qt/100 gallons of spray solution. Cost: $3.27-$3.69

OATS

MCPA	0.5-1 pt	Weeds and oats in 3-4 leaf stage	Cost: MCPA $0.86-$1.73; Buctril + 2,4-D or MCPA $7.23-$10.50; Buctril alone $6.56-$9.83.
BUCTRIL alone or with 2,4-D AMINE (4) or MCPA	1.0-1.5 pt or 0.5 pt		
CURTAIL M	1.75-2.3 pt	Oats 3-leaf to joint, weeds <3"	Cost: $7.42-$9.95.
2,4-D AMINE (4)	0.5-1 pt	3-4 leaf stage of oats	Some injury from 2,4-D may be expected at any stage. Cost: $0.67-$1.34.

Harvest Aid

Herbicide	Rate Per Acre3	Application Time	Remarks and Approximate Cost/A Broadcast
2,4-D LV ESTER (4)	1 qt	Hard dough 7 or more days before harvest	Helps desiccate large broadleaf weeds. Only certain brands labeled for use. Cost: $3.38.

WINTER WHEAT

AMBER	0.28-0.56 oz	In fall after 2 leaf stage	Effective control on mustards and Pennycress. Add surfactant. Cost: $3.08-$6.17.
AMBER + 2,4-D AMINE (4) or BANVEL	0.28-0.56 oz .25-0.5 pt 2-3 oz	Wheat tiller to joint	Add surfactant if weeds are present. Useonly in small grain rotation. Amber must be tank-mixed with appropriate herbicides having a different mode of action if the sulfonylurea resistant weeds are suspect. Add surfactant at 1-2 qt/100 gal. Cost: Amber + 2,4-D $3.51-$7.01; Amber + Banvel $4.83-$7.91.
2,4-D AMINE (4) or 2,4-D LV ESTER (4)	1-1.5 pt 0.5-0.75 pt	Early spring, before joint stage	Do not spray winter wheat until well tillered. Spray broadleaf weeds as soon as good growing conditions occur. Cost: $.84-$2.01.
BRONATE 4EC	1-1.5 pt	Wheat well tillered before canopy covers weeds	Most broadleaf weeds should be in 2-4 leaf stage or mustards in early rosette stage. Cost: $6.82-$10.42.
BUCTRIL 2EC + 2,4-D AMINE (4)	1-1.5 pt 0.5 pt		
BANVEL + 2,4-D AMINE (4)	2-4 oz 0.75-1 pt	Spring, before wheat joints	Controls most troublesome broadleaf weeds. Cost: $2.17-$3.67. Do not apply with fertilizer solutions.
CURTAIL	2.0 pt	Before boot stage	Use Curtail in small grain rotations. For Ally + 2,4-D, add surfactant 1 qt/100 gallons of spray solution. Cost: Curtail $8.48; Ally + 2,4-D $3.69.
ALLY + 2,4-D LV ESTER (4)	0.10 oz + 0.5 pt	Weeds, 2"-4"	
2,4-D LV ESTER (4) + TORDON 22K	0.5-0.75 pt 1-1.5 oz	Spring after resumption of active growth to before joint stage	Use only on land to be planted the following year to grass, barley, wheat, oats or fallowed. Cost: $1.55-$2.33.
HARMONY EXTRA	0.3-0.4 oz	Wheat 2 leaf through tillering weeds less than 4" tall	Add a nonionic surfactant at 1 qt/100 gallons. Any crop can be planted 60 days after application. Cost: $3.59-$4.79.

Harvest Aid

ALLY + 2,4-D AMINE (4)	0.1 oz 4-8 oz	After dough stage.	Preharvest interval of 20 days. Add surfactant at 1 qt/100 gallons of spray solution. Cost: $3.19-$3.52.
2,4-D LV ESTER (4)	1 qt	Hard dough 7 or more days before harvest	Rescue for control of late broadleaf weeds. To reduce breakage with 2,4-D and Landmaster BW all green color should be gone from joints. Only certain brands of 2,4-D labeled for this use. For Roundup RT and Roundup RT + 2,4-D add 0.5% nonionic surfactant. Cost: 2,4-D $3.38; Landmaster $8.08; Roundup RT $7.65-$8.75; Roundup RT + 2,4-D $6.06-$12.15
ROUNDUP RT	28-32 oz		
ROUNDUP RT + 2,4-D LV ESTER (4)	1.0-2.0 pt 1.0-2.0 pt		
LANDMASTER	54 oz		

PROSO MILLET

Herbicide	Rate Per Acre[3]	Application Time	Remarks and Approximate Cost/A Broadcast
2,4-D AMINE (4) (NE Label)	.5-1.0 pt	Proso in 2-5 leaf stage	Broadleaf weeds should be small. Observe all Banvel precautions when susceptible crops are within 1/2 mile of application site. Cost: 2,4-D amine $.67-$1.34; 2,4-D + Banvel $3.34.
2,4-D AMINE (4) + BANVEL (NE Label)	0.75 pt 0.25 pt		

SUNFLOWER

Herbicide	Commercial product per Acre: Sandy Loam < 1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM	Remarks and Approximate Cost/A Broadcast
PROWL (3.3) PPI	1.2-2.4 pt	1.8-3.0 pt	2.4-3.6 pt	PPI up to 30 days prior to planting. Prowl is most effective in controlling weeds when adequate rainfall or irrigation is received within 7 days after application. Otherwise, a registered postemergence grass herbicide may be required. Cost: $4.46-$13.39 .
or PRE	3.0-3.6 pt	3.6 pt	3.6 pt	
SONALAN	1.5-2.0 pt	2.0-2.5 pt	2.5-3.0 pt	PPI...For best results immediately incorporate. Read label for carryover precautions. Use the lower rates under 20" rainfall. Sensitive crops may be injured the following year. Cost: $4.13-$12.10.
TREFLAN	1 pt	1.25-1.5 pt	1.5-2 pt	

Postemergence

POAST + DASH + 28% UAN	1 pt 1 qt + 1 gal	Good coverage essential. Shattercane and corn 12-18"; other annual grasses less than 4". Cost: $13.38-$16.46.

Ecofarming

Ecofarming (Ecofallow) is a system based on quality winter wheat stubble. Good quality stubble is the result of growing a winter wheat variety competitive with weeds along with good disease and insect resistance. Proper planting date, fertilized according to needs, weed control in the growing wheat, harvested with minimum grain loss and good chaff and long straw distribution all contribute to the success of this program. Also required is excellent herbicide application. If non-selective herbicides are being applied, weather and weed conditions need to be correct for good results. Atrazine, Bladex, Extrazine II, Gramoxone Extra, Cyclone, Roundup, Roundup RT, Landmaster BW or Fallow Master will control established broadleaf weeds, grasses or volunteer wheat depending on plant height. If grasses are less than 1" tall, Atrazine, Bladex, or Extrazine II will provide acceptable control. Control is improved when crop oil concentrate or 28% nitrogen is added. When planting corn, 2,4-D ester may also be added for improved weed control. Cyclone should be applied with a nonionic surfactant to grasses less than 4" tall. If grasses are taller than 4" and are growing vigorously, apply Roundup[1] or Landmaster BW[1]. Mixing some herbicides can create antagonism and decrease performance. Kill volunteer wheat and annual bromes in April to prevent soil moisture loss. Consider banding over the row in weedy fields at planting to compensate for disturbing the soil with the planter.

Volunteer winter wheat and/or downy brome or jointed goatgrass are not usually controlled with July and early August atrazine treatments. A split after harvest treatment with the early application atrazine rate reduced so 1 lb/A of atrazine can be applied in September can be an effective control measure. If maximum rates of atrazine have been applied the previous fall do not add additional atrazine in the spring. Lower rates of atrazine (or none at all) need to be used on eroded areas, on soils with less than 1.2%-OM, on soils with a pH of 7.0 or greater, some terraces, Canyon and Rosebud soils, and caliche outcroppings. High atrazine rates may carryover and destroy wheat on these areas. Total atrazine applied last year after wheat harvest plus this year's treatment should not exceed 3.75 lb 80W or 3 qt 4L/A for land to be planted to corn or sorghum. To receive the maximum benefits from ecofarming which includes moisture conservation and preventing weed seed production, treatments applied soon after harvest are usually the most successful. This is on the condition the weeds are not under drought stress and the straw has settled. At that time the weeds are smaller and easier to control with the nonselective translocating herbicide (Roundup, Roundup RT, Landmaster BW, and Fallow Master). The non-selective, non-translocating herbicides (Cyclone, Gramoxone Extra) are usually more effective in controlling small weeds and as they approach maturity.

If grasses recover from initial after harvest herbicide applications use Roundup to kill escapes. Where Cyclone was used, use 12 oz/A of Roundup and where Landmaster BW or Roundup was used, use 9 or 12 oz/A of Roundup.

Fields not treated after harvest with AAtrex/Atrazine are not true ecofallow. Therefore, herbicides might not be as effective and grain yields may be poorer than fields treated in fall. If moisture was present after harvest and weeds produced seed, weed density may be great enough that weed control with herbicides at rates that do not cause crop injury may be difficult. Also the moisture lost after harvest may be critical to the crop if the moisture during the winter and spring is limited. With these considerations and if one wishes to try the spring-only treatment, the following is suggested: Add or increase the AAtrex/Atrazine to the lower of the maximum labeled rate or the amount the crop can tolerate and still not cause damage to the succeeding crop. Be sure to add a grass herbicide. Add Cyclone at 1.5 to 2.0 pt after April 15 depending upon size of weeds. Rates suggested depend on soil type, pH, OM, time of application, and weed size. For corn use 1.5 to 2.0 qt/A AAtrex/atrazine, for grain sorghum use 1.25 to 2..0 qt/A AAtrex/atrazine. An early spring treatment of Roundup or Landmaster with atrazine as soon as good growing conditions exist in the spring is an effective treatment for volunteer wheat and downy brome. Dual or Bicep, Micro-Tech or Bullet should be applied 20 to 30 days before corn or sorghum planting. For sorghum, use the appropriate seed treatment for Dual, Bicep or Bullet.

PLANTING ROW CROPS NO-TILL INTO LAST YEAR'S SPRING SMALL GRAIN STUBBLE (Oats, Spring Wheat, and Spring Barley)

The spring small grains are not as competitive with weeds as winter wheat. This is because the winter wheat is established in the fall and starts growth early in the spring before most weeds germinate. With good stands of winter wheat, most weeds except for winter annual weeds, are not a problem.

The quality and quantity of winter wheat stubble and straw is also superior and longer lasting than that of the spring grain crops. The winter wheat stubble and straw is more effective in suppressing weeds. Therefore, planting crops no-till into last year's small grain, while it can be successful, can also be a disaster if the herbicide treatments are not timely, properly selected, applied properly, and results are not evaluated to determine if retreatment or other weed control measures are necessary.

The most important part of this program is weed control after spring small grain harvest. Keeping the weeds from producing seed and using stored soil moisture is done with a timely herbicide treatment after harvest. The herbicide treatments listed for winter wheat after harvest can be used in small grain stubble in most situations (checkthe label to be sure and for the recropping intervals for the crops in your rotation). The higher labeled rates of herbicides are usually required. Roundup, Roundup RT, Landmaster BW, and Fallow Master are usually the choice nonselective herbicides for control of emerged summer annual grass weeds that are growing rapidly. As weeds approach maturity, Gramoxone Extra or Cyclone have given good results if combined with atrazine and/or Bladex. If atrazine is used in the fall treatment, the next crop must be tolerant to it at the rate used (check label).

The spring herbicide treatment is necessary. Again, check the rates, etc. for the crop in the ecofarming section. Check labels and be sure to control volunteer crops. Also, do not disturb the herbicide treatment if a residue herbicide was applied last fall. Read all the general remarks under ecofarming and see footnotes on page 53.

For additional information on ecofarming, see the 1993 Proceedings of the Ecofarming and Winter Wheat Conferences.

Weed Response to Herbicides Applied After Winter Wheat Harvest

Response Ratings:
Ratings are for light to moderate weed populations, favorable conditions and weed growth stage as specified on product label. High weed populations, adverse conditions, or large weeds will reduce control.

E = Excellent (90-100%)
G = Good (75-90%)
F = Fair (50-75%)
P = Poor (0-50%)

Herbicides[a]	Broadleaf Weeds											Summer Annual Grasses							Winter Annual Grasses		
	Buffalobur	Horseweed	Knotweed, Tall	Kochia	Lambsquarters	Lettuce, P	Pigweed	Smartweed, P.	Spurge, Tooth	Sunflower	Thistle, R.	Barnyard Grass	Foxtail, Gr.	Foxtail, Ye.	Sandbur	Shattercane	Stinkgrass	Witchgrass	Downy Brome	Jointed Goatgrass	Volunteer Wheat
	6 inches tall or less											4 inches tall							4 inches tall		
Cyclone	E	E	E	E	E	E	E	F	E	E	E	P	G	P	F	F	G	G	G	G	G
Cyclone + Bladex	E	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	E	E	E	E	E
Cyclone + atrazine	E	E	E	E	E	E	E	E	E	E	E	E	E	E	G	F	E	E	E	E	E
Fallow Master	E	E	E	E	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Fallow Master + atrazine	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Landmaster BW	E	E	E	G	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Landmaster BW + atrazine	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Roundup	E	E	G	G	E	G	E	E	F	E	G	E	E	E	E	E	E	E	E	E	E
Roundup + atrazine	E	E	E	G	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	12 inches tall											Tillered to boot							Tillered to boot		
Cyclone	F	F	F	F	F	F	F	P	F	F	F	P	P	P	P	P	P	P	P	P	P
Cyclone + Bladex	E	E	E	E	E	E	E	G	E	E	E	F	G	F	F	P	G	G	G	G	G
Cyclone + atrazine + 2,4-D[b]	E	E	E	E	E	E	E	G	E	E	E	F	G	F	F	P	G	G	G	G	G
Fallow Master	E	E	E	E	E	G	G	E	G	E	E	G	E	G	E	E	E	G	E	E	E
Fallow Master + atrazine	E	E	E	E	E	G	E	E	G	E	E	G	E	G	G	E	E	G	E	E	E
Landmaster BW	E	G	E	G	E	G	G	E	G	E	G	G	E	G	E	E	E	G	E	E	E
Landmaster BW + atrazine	E	E	E	G	E	G	E	E	G	E	E	F	E	G	G	E	E	G	E	E	E
Roundup	E	G	G	F	G	G	G	E	P	E	G	G	E	G	G	E	E	G	E	E	E
Roundup + atrazine + 2,4-D	E	E	E	G	E	G	E	E	G	E	E	F	E	G	G	E	E	G	E	E	E
	24 inches tall											Headed							Headed		
Cyclone	G	G	F	G	G	G	G	P	F	F	F	F	G	G	G	P	G	G	G	G	G
Cyclone + Bladex	E	E	G	E	E	E	E	G	E	E	E	E	E	E	E	P	E	E	E	E	E
Cyclone + atrazine + 2,4-D[b]	E	E	G	E	E	E	E	G	E	E	E	E	E	E	E	P	E	E	E	E	E
Fallow Master	G	G	G	F	G	G	G	G	F	G	G	G	E	G	E	E	E	G	E	E	E
Fallow Master + atrazine	E	G	G	G	E	E	E	E	G	G	G	G	E	E	E	E	E	G	E	E	E
Landmaster BW	G	G	G	F	G	G	G	G	F	G	G	G	E	G	E	E	E	G	E	E	E
Landmaster BW + atrazine	E	G	G	G	E	E	E	E	F	E	G	G	E	E	E	E	E	G	E	E	E
Roundup	G	G	F	P	F	F	F	G	P	G	F	G	E	G	E	E	E	G	E	E	E
Roundup + atrazine + 2,4-D	E	G	G	G	E	E	E	E	F	E	G	G	E	E	E	E	E	G	E	E	E

[a]Rate is 1.5 pt/A for Cyclone, 54 oz/A for Landmaster BW, and 16 oz/A for Roundup. Atrazine rate is 2.0 qt/A. Consult label to improve weed control with some herbicides. Example, tillered barnyardgrass needs 84 oz/A of Landmaster BW.
[b]Add 2,4-D ester at 1.5 pt/A.

Ecofarming

Herbicides to use after winter wheat harvest, with winter wheat planted in 2 to 3 months (continuous winter wheat), in 12 to 14 months (fall treatment in winter wheat fallow), or in 4-5 months (spring treatment in winter wheat fallow).

Herbicide	Commercial product per Acre: Sandy Loam <1% OM	Silt Loam 1-2% OM	Silty-Clay Loam >2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
Winter Wheat Stubble, to be Seeded 2-3 Months Later to Winter Wheat (Continuous Wheat)					
ROUNDUP or ROUNDUP RT[1]	12-32 oz	12-32 oz	12-32 oz	Postemergence; two or more applications required. Wait 15 days before planting wheat with Landmaster BW	If volunteer wheat develops close to planting, treat with Roundup or Roundup RT. To facilitate, drilling stubble should be no taller than 12" with good straw and chaff distribution. Cost: Roundup $4.33-$11.54; Roundup RT $3.00-$8.00; Landmaster BW $5.98-$9.57.
LANDMASTER BW[1]	40-64 oz	40-64 oz	40-64 oz		

Herbicide	Commercial product per Acre: Sandy Loam <1% OM	Silty Loam 1-2% OM	Silty-Clay Loam >2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
Winter Wheat Stubble to be Seeded 12-14 Months Lates (Fallow Aid)					
AATREX 4L	1 pt	2 pt	2 pt		Spray before weeds produce seed and not under drought stress. Volunteer wheat and downy brome control are better with late Aug. and early Sept. application. The addition of 1 pt 2,4-D ester to AAtrex + Cyclone to improve control broadleaf weeds may decrease control of grasses. Roundup RT + 2,4-D may be substituted for Landmaster BW. Cost: AAtrex + Cyclone $8.15-$11.37; Bladex + Atrazine + Cyclone + 2,4-D $14.00-$15.63; AAtrex + Landmaster BW $9.64-$16.02.
+					
CYCLONE[1]	1.5-2 pt	1.5-2 pt	1.5-2 pt		
BLADEX 90DF	1.1 lb	1.1 lb	1.1 lb		
+					
ATRAZINE 4L	1 pt	1.5 pt	1.5 pt		
+					
CYCLONE[1]	1.5-2 pt	1.5-2 pt	1.5-2 pt	Aug 10-Sept 10 (12 months or more before seeding)	
+					
2,4-D LV ESTER (4)	1 pt	1 pt	1 pt		
AATREX 4L	1 pt	2 pt	2 pt		
+					
LANDMASTER BW[1]	54-86 oz	54-86 oz	54-86 oz		
LANDMASTER BW[1]	54 oz	54 oz	54 oz	Apply Landmaster BW at harvest. Apply atrazine between Aug. 20 - Sept. 10	Good for weeds that are present early. Use Cyclone or Roundup RT with AAtrex on weeds present in late August to early September. Cost $9.66-$11.23.
followed by					
AATREX	1-2 pt	2 pt	2 pt		
Winter Wheat Stubble to be Seeded to Winter Wheat 4-5 Months Later (Fallow Aid)					
ROUNDUP					
or					
ROUNDUP RT[1]	12-16 oz	12-16 oz	12-16 oz	Post in Apr. or before boot stage of weeds	Roundup $4.33-$5.77; Roundup RT $3.28-$4.38; Landmaster BW $5.98-$8.08; Fallow Master $5.70-$7.84.
LANDMASTER BW[1]	40-54 oz	40-54 oz	40-54 oz		
FALLOW MASTER	32-44 oz	32-44 oz	32-44 oz		
Winter Wheat Stubble to be Planted to Corn or Sorghum the Next Spring "Check Remarks Under Ecofarming"					
Herbicides to use after winter wheat harvest.					
CYCLONE[1]	1.5-2 pt	1.5-2 pt	1.5-2 pt		Spray after wheat harvest and before weeds produce seed. If grasses such as barnyardgrass recover, kill weeds before they develop seed. Use 1-1.2 qt Atrazine in Panhandle. Volunteer wheat and downy brome control better with late Aug.-Oct. applications. Minimum rates for Landmaster BW with Atrazine are: 54 oz/A + 2 lb/A or less atrazine 64 oz/A + 3 lb/A or less atrazine Barnyardgrass control requires 86 oz/A of Landmaster BW. Cost: Atrazine + Cyclone $11.21-$16.00; AAtrex + Landmaster BW $14.39-$19.04.
+					
AATREX/ATRAZINE 4L	2 qt	2.25 qt	2.5 qt	July-Aug.	
	1.5 qt	2 qt	2.25 qt	Sept. or Oct.	
LANDMASTER BW[1]	54-64 oz	54-64 oz	54-64 oz		
+					
AATREX/ATRAZINE 4L	2 qt	2.5 qt	3 qt	July-Aug. or	
	1.5 qt	2.0 qt	2.5 qt	Sept.-Oct.	
Herbicides to be used after winter wheat harvest.					
Winter Wheat Stubble to be Planted to Soybeans or Sunflowers the Following Spring **(Consider Soybeans in Areas With Over 20" Rainfall)**					
LANDMASTER BW[1]	54-86 oz	54-86 oz	54-86 oz	2 applications	Volunteer wheat may emerge in fall or spring. Control with Roundup. See spring treatments for soybeans or sunflowers on page 33. Cost: Landmaster BW $8.08-$12.87; Roundup $5.77-$11.55; Roundup RT $4.38-$8.75.
or					
ROUNDUP or ROUNDUP RT	16-32 oz	16-32 oz	16-32 oz		

Herbicide	Commercial product per Acre: Sandy Loam <1% OM	Silty Loam 1-2% OM	Silty-Clay Loam >2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
Corn to be Planted In Winter Wheat Stubble Treated with AAtrex/atrazine After Harvest[4]					
Herbicides to be used for ecofallow corn in the spring.					
If volunteer wheat and/or downy brome were not controlled in the fall, spray in April or control earlier with Roundup, Roundup RT, or Landmaster BW. Low rates (less than 2 lbs active) of atrazine and/or Bladex usually do not give satisfactory volunteer wheat and downy brome control when applied in July or early August of the previous summer. If triazine resistant kochia is a problem see Troublesome Weeds and Woody Plants, page 48.					
BLADEX 4L	1.75 qt	2 qt	2.5 qt	15-30 days preplant	Do not use on sands and loamy sands with less than 1% OM. Cost: Bladex $11.97-$14.96; Bladex + Atrazine $9.85-$13.63; Bladex + Dual $14.93-$23.89.
BLADEX 4L + AATREX/ATRAZINE 4L	1.25 qt + 0.75 qt	1.5 qt + 1 qt	1.75 qt + 1 qt	0-15 days preplant	
BLADEX 4L + DUAL/DUAL II	1.5 qt + 0.75 qt	1.75 qt + 1 qt	2 qt + 1 qt		
DUAL/DUAL II	2 pt	2.5 pt	3 pt	0-20 days preplant	If annual grasses produced seed in the wheat stubble or if areas of field have history of high grass population use higher rates of Dual or Micro-Tech. Cost: Bicep $14.63-$19.51; Bullet $18.55-$19.79; Dual $11.93-$17.95; Dual + AAtrex $14.30-$21.11; Micro-Tech + AAtrex $15.40-$19.45; Micro-Tech + Bladex $20.52-$34.25.
BICEP/BICEP LITE	1.8 qt	2.4 qt	2.4 qt		
DUAL/DUAL II + AATREX 4L	1.5 pt + 0.75 qt	2 pt + 1 qt	2 pt + 1 qt		
BULLET	3.75 qt	4 qt	4 qt		
MICRO-TECH + AATREX 4L or BLADEX 4L	2 qt + 0.75 qt or 1.25 qt	2.5 qt + 1 qt or 1.5 qt	2.5 qt + 1 qt or 2 qt		
Winter Wheat to be Planted In Fall (Fallow Aid)					
Herbicides to be used in spring on corn or sorghum stubble when followed with winter wheat.					
ROUNDUP or ROUNDUP RT	12-16 oz	12-16 oz	12-16 oz	Apr 16-May 1	Application time depends on year and weed species. If downy brome or volunteer wheat are present, they must be controlled before May 1. Early application is necessary to control winter annuals. Use Roundup for control of downy brome before heading. Do not plant wheat for 20 days. Follow-up weed control may be necessary. Cost: Landmaster BW $5.98-$8.08; Roundup $4.33-$5.77; Roundup RT $3.83-$5.11; Fallow Master $5.70-$7.83; Amber + Roundup $8.86-$11.95; Glean + Roundup $11.79.
LANDMASTER BW	40-54 oz	40-54 oz	40-54 oz		
FALLOWMASTER	32-44 oz	32-44 oz	32-44 oz		
AMBER + ROUNDUP OR ROUNDUP RT	0.28-.56 oz + 1 pt	0.28-.56 oz + 1 pt	0.28-.56 oz + 1 pt	Before May 1	
GLEAN + ROUNDUP OR ROUNDUP RT	0.33 oz + 1 pt	0.33 oz + 1 pt	0.33 oz + 1 pt		

Herbicide	Commercial product per Acre: Sandy Loam <1% OM	Silty Loam 1-2% OM	Silty-Clay Loam >2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
Soybeans to be Planted Into Winter Wheat Stubble Treated With Landmaster BW, Roundup or Roundup RT After Harvest (For Areas With Over 20" Rainfall and Fields With Low Weed Density)					
PURSUIT*	4 oz	4 oz	4 oz		Add 1-1.5 pt/A of Roundup[1] or Roundup RT[1] if there are emerged weeds. Control weeds when they are small to conserve moisture and improve performance. Check fields within 30 days after planting to determine if postemergence herbicides are needed. Cost without Roundup or Roundup RT: With Dual $34.49-$42.44; With Lasso/Micro-Tech $31.63-$38.15; With Prowl $27.51-$31.98; Pursuit Plus $23.76.
+					
DUAL/DUAL II	2 pt	2.5 pt	3 pt	0-30 days preplant	
or					
MICRO-TECH	2 qt	2.5 qt	3 qt		
or					
PROWL (3.3)	2.4 pt	3 pt	3.6 pt		
PURSUIT PLUS	2.5 pt	2.5 pt	2.5 pt		
Sunflowers to be Planted Into Winter Wheat Stubble Treated With Landmaster BW, Roundup or Roundup RT After Harvest (Both Treatments Required)					
LANDMASTER BW[1]	40 oz	40 oz	40 oz	Before May 1 and a minimum of 30 days prior to planting to control volunteer wheat and downy brome	Cost: Landmaster BW + Prowl $12.68; Roundup + Prowl $12.46.
+					
PROWL (3.3)	1.8 pt	1.8 pt	1.8 pt		
followed by					
ROUNDUP1	1.6 oz	1.6 oz	1.6 oz		
+					
PROWL (3.3)	1.8 pt	1.8 pt	1.8 pt		

*See rotational crop restrictions on the Pursuit label

Grain Sorghum to be Planted In Winter Wheat Stubble Treated With AAtrex/Atrazine After Harvest

If volunteer wheat and/or downy brome were not controlled in the fall, spray in April or control earlier with Roundup, Roundup RT, or Landmaster BW. Low rates (less than 2 lbs active) of atrazine and/or Bladex usually do not give satisfactory volunteer wheat and downy brome control when applied in July or early August of previous summer. If triazine resistant kochia is a problem see Troublesome Weeds and Woody Plants, page 48.

Herbicide	Commercial product per Acre: Sandy Loam < 1% OM	Silty Loam 1-2% OM	Silty-Clay Loam > 2% OM	Application Time	Remarks and Approximate Cost/A Broadcast
BLADEX 4L	2.5 qt	3 qt	3.5 qt	35-45 days preplant	Add 1.5-2 pt Cyclone[1] or 54 oz Landmaster BW for emerged weeds if Bronco is not used. When using Landmaster BW wait 20 days prior to planting. Seed must be treated with Concep for Dual or Bicep and Screen treated for Lasso, and Bullet treatments. Cost:Bicep $14.62-$17.06; Dual $15.90-$19.88; Dual + AAtrex $13.51-$19.05; Lasso + AAtrex $11.15-$13.52; Lasso + Bladex $18.54-$21.53; Bladex $11.96--$20.94; Bladex + Atrazine $8.13-$19.53; Bladex + Dual $19.41-$30.86; Bullet $18.55-$19.79.
BLADEX 4L	2.0 qt	2.5 qt	3 qt	28-38 days preplant	
BLADEX 4L + ATRAZINE 4L	2.0 qt* + 0.5 qt*	2.5 qt + 0.5 qt	3 qt + 0.5 qt	35-45 days preplant	
BLADEX 4L + ATRAZINE 4L	1.2 qt + 0.3 qt	1.5 qt + 0.4 qt	2 qt + 0.5 qt	14-24 days preplant	
BLADEX 4L + DUAL/DUAL II	1.6 qt + 2 pt	2 qt + 2 pt	2.5 qt + 2 pt	28-38 days preplant	
BLADEX 4L + DUAL/DUAL II	1.25 qt + 1.5 pt	1.6 qt + 1.5 pt	2 qt + 1.75 pt	14-24 days preplant	
BICEP, BICEP II, BICEP LITE	Do not use	1.8 qt	2.1 qt	0-28 days preplant	
DUAL/DUAL II	2.0 pt	2.25 pt	2.5 pt	0-28 days preplant	
DUAL/DUAL II + AATREX 4L	1.5 pt + 0.5 qt	2 pt + 1 qt	2 pt + 1 qt	0-20 days preplant	
BULLET	3.75 qt	3.75 qt	4.0 qt	0-28 days preplant	
LASSO EC + AATREX 4L or BLADEX 4L	2 qt + 0.5 qt + 1.5 qt	2.5 qt + 1 qt + 1.75 qt	2.5 qt + 1 qt + 2 qt	0-7 days preplant	

*21 days or more preplant when used on sandy soil.

Weed Response to Selected Alfalfa Herbicides

Response Ratings:
Ratings are for light to moderate weed populations, favorable conditions and weed growth stage as specified on product label. High weed populations, adverse conditions, or large weeds will reduce control.
E = Excellent (90-100%)
G = Good (75-90%)
F = Fair (50-75%)
P = Poor (0-50%)

Herbicides	Barnyardgrass	Dandelion	Downy Brome	Field Pennycress	Foxtail	Kochia	Kochia-Triazine Resistant	Lambsquarters	Pigweed	R. Thistle	Sandbur	Shepherdspurse	Tansy Mustard	Crop Tolerance[a]	Recrop Interval in Months When Changing to Nonlabeled Crop[b]
Preplant															
Balan	E	P	E	P	E	G	G	E	G	G	G	P	P	G	12
Eptam	E	P	E	P	E	G	G	G	G	P	G	P	P	G	2
Seedling															
Buctril (seedling only)	P	P	P	F-G	P	G	G	E	P	G	P	E	F-G	G	0
Butyrac/Butoxone	P	P	P	P	P	F	P	G	P	F	P	P	P	G	1
Poast	E	P	F-G	P	G	P	P	P	P	P	G	P	P	E	O
Established															
Karmex	E	P	F	G	G	E	E	G	G	F	F	E	E	G	24
Kerb	F	P	E	P	P	F	F	P	P	F	P	P	P	G	9
Lexone/Sencor	G	G	E	E	F	E	P	E	E	G	P	E	E	G	4
Sinbar	F	F	E	E	F	G	G	G	E	G	F	E	E	G	24
Velpar	F	G	E	G	P	G	P	G	G	G	F	E	E	G	12-24

[a]Crop varieties vary in their response to herbicides. Applying herbicides with liquid fertilizer may increase crop injury.
[b]Values will vary with soil texture, pH, organic matter, rainfall or irrigation, rotational crop and herbicide rate. For more information see NebGuide G74-180, *Herbicide Carryover.*

Alfalfa

See NebGuide G75-220, *Weed Control in Alfalfa* for more information.

Area or Use	Herbicide	Commercial Product per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
To Control Alfalfa, see Troublesome Weeds and Woody Plants, Page 45.				
ALFALFA (Establishing new stands)	BALAN	3-4 qt	Preplant	Apply to dry surface soil and immediately incorporate by cross tandem discing or equivalent soil mixing. Use lower rate on sandy soil. Early legume injury may occur. Controls primarily annual grasses. Cost: Balan $12.00-$16.00; Eptam $8.55-$11.97; Treflan $4.13-$6.21
	EPTAM	2.5-3.5 pt		
	TREFLAN (set-aside only)	1-1.5 pt		
	BUCTRIL	1-1.5 pt	Weeds less than 2" tall. Alfalfa at least 2 trifoliate leaves	Do not treat until 30 days after seeding or when temperature is above 70°F. Cost: $6.56-$9.83.
	POAST PLUS	1-2 pt	Grasses 4" or less	Good coverage necessary. Use higher rate for sandbur, volunteer cereals, or winter annual grasses. Poast will not control over-wintered downy brome. Add COC to spray solution. Cost: $11.93-$23.88.
ALFALFA (Seedling or established)	BUTYRAC or BUTOXONE (2,4-DB) or BUTYRAC 200	1-3 qt	Postemergence. Weeds less than 3" tall; alfalfa 2-4 trifoliate leaves	DO NOT use treated forage for 60 days after treatment on new stands and 30 days on established stands. Use when temperature is above 50°F. Cost: $8.92-$26.78.
	KERB 50W	1-1.5 lb	Pre or post to winter annual grasses Oct.-Mar.	Controls downy brome and volunteer cereals. Cost: $26.75-$40.13.

Alfalfa

See NebGuide G75-220 *Weed Control in Alfalfa* for more information.

Area or Use	Herbicide	Commercial Product per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
ALFALFA (Established one year or more)	GRAMOXONE EXTRA	1.5-2 pt	Dormant alfalfa	Do not cut or harvest within 60 days of application.
	KARMEX 80W	1.5-3 lb	Late fall to early spring to dormant alfalfa	Primarily for winter annual weeds such as pennycress and other mustards. Sinbar, Velpar, and Lexone/Sencor also control downy brome. Do not use on sand; use lowest rates on soils with less than 1% organic matter. Spring application of Karmex controls annual warm season grasses such as foxtail and barnyard grass. Cost: Karmex $6.45-$13.00; Sinbar $11.25-$22.50; Lexone/Sencor $13.04-$26.08; Gramoxone Extra $5.77-$11.54.
	LEXONE/SENCOR DF	0.5-1 lb		
	SINBAR 80W	0.5-1 lb		
	VELPAR L	1-1.5 qt	Late fall to early spring to dormant alfalfa	The 1 qt/Acre rate of Velpar is for low organic matter soils for downy brome control. Cost: $14.75-$22.15.

Pastures and Ranges

(See pages 45-53 for specific weed)

Area or Use	Herbicide	Commercial Product per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
	See NebGuide G88-871, *Chemical Control of Rangeland Weeds* for more information.			
CRP ONLY (established grasses)	AATREX DF	0.6-1.1 lb	PRE, fall or early spring	Use on bluegrama, Indian grass, little bluestem, sand lovegrass, sideoats grama, western wheatgrass.
	AATREX DF[2]	1.1-2.2 lb		Use on big bluestem and switchgrass. Cost: $1.81-$6.64.
GRASS SEEDLINGS (Cool and warm season grasses)	2,4-D LV Ester (4)	1 pt	Grass 5-leaf stage or beyond	For broadleaf weeds. After grasses are well established, increase rate to 1 qt. Cost: $1.69-$3.38.
WARM SEASON GRASSES (grown for seed production)	AATREX DF[2]	1-2 lb	Before weeds and crop emerge.	Established grasses. Cost: $3.00-$12.19.
	BICEP	1.0-1.5 qts		
SOD SEEDING (Legumes into grass)	GRAMOXONE EXTRA	1.5-3 pt	Before or immediately after legume seeding	Suppresses established sod. Seed legumes with a sod seeder. If grass is less than 3" use lower rate. During year of establishment, graze intensively for short periods only. Add X-77 surfactant. Cost: $10.13-$15.94.
SOD SEEDING (Native grass planted no-till)	ROUNDUP	1 pt in 10 gal or less water/A	Aug., the season prior to seeding	Suppresses established sod. Seed grasses with a sod seeder. Do not graze seeded area until dormancy after second growing season. Apply in no more than 10 gallons water per acre and add 2 qt X-77 and 17 lb ammonium sulfate per 100 gallons. Cost: $11.54-$23.10.
	ROUNDUP	1-2 qt	Spring, on cool season grasses	
ANNUAL OR BIENNIAL BROADLEAF WEEDS IN PASTURES AND RANGES (For specific weeds see page 45-53.)	2,4-D LV Ester (4)	1 qt	Rosette stage in fall or when weeds are small in spring	Withhold milk cows from grazing treated areas for 7 days. With Banvel mixture do not harvest hay for dairy animals within 37 days. Do not use Banvel within 1/2 mile of sensitive crops. Combination controls greater variety of weed species. Cost: 2,4-D $3.37; 2,4-D + Banvel $8.02; Ally $5.69-8.54; Curtail $8.48-6.50.
	2,4-D LV Ester (4) + BANVEL	1 qt + 0.5 pt		
	ALLY	0.2-0.3 oz		
	CURTAIL	2 pt		
PERENNIAL BROADLEAF WEEDS IN PASTURE AND RANGES Includes: vervains, broom snakeweed, western ironweed, woolly loco, flodman thistle and wavyleaf thistle. For other weeds see pages 45-53.)	2,4-D LV Ester (4)	1.5 qt	At bud stage of predominant weed. Oct. or Apr., for dandelion and musk thistle	Annual treatment for 2-3 years may be necessary. for 7 days. Withhold milk cows from grazing. With Banvel mixture do not harvest hay for dairy animals for 37 days. Do not use Banvel within 1/2 mile of sensitive crops. Cost: 2,4-D $5.06; 2,4-D + Banvel $12.67; Curtail $8.48-$16.96.
	2,4-D LV Ester (4) + BANVEL	1 qt + 1 pt		
	CURTAIL	2-4 pt		

Grazing Restrictions for Pasture Herbicides

Herbicides	Product	Lactating Dairy Animals		Beef and Non-Lactating Dairy Animals		
		Before Grazing	Before Hay Harvest	Before Grazing	Before Hay Harvest	Removal Before Slaughter
STINGER 3E (Clopyralid)	0.66 to 1.31 pt	0	0	0	0	0
BANVEL 4S (Dicamba)	Up to 1 pt	7 days	37 days	0	0	30 days
	Up to 2 pt	21 days	51 days	0	0	30 days
	Up to 4 pt	40 days	70 days	0	0	30 days
	Up to 16 pt	60 days	90 days	0	0	30 days
ROUNDUP/(Glyphosphate)						
Spot or Wiper[A]	Any labeled rate	14 days	14 days	14 days	14 days	0
Broadcast	Any labeled rate	8 weeks	8 weeks	8 weeks	8 weeks	0
ALLY (Metsulfuron)	0.10 to 0.30 oz	0	0	0	0	0
GRAMOXONE EXTRA (paraquat[B])	0.8 to 1.5 pt	1 month	1 month	1 month	1 month	0
TORDON 22K (Picloram[C])	0.5 to 2.0 pt	14 days	14 days	0	14 days	3 days
2,4-D/MCPA[D]		7-14 days	30 days	0-7 days	0-30 days	0
SPIKE 20P (Tebuthiuron)	1/2 oz per 45 sq. ft.	0 days[G]	1 year[F]	6 days[F]	1 year[F]	0 days[F]
CROSSBOW 3S		1 to 6 qt				
(Triclopyr + 2,4-D)		1 year	1 year	5 weeks[E]	1 year	3 days
CURTAIL	2.0 to 4.0 pt	14 days	30 days	0	30 days	7 days[G]

[A]Do not treat more than one-tenth of any given acre at one time with spot or wiper applications. Remove livestock before application.
[B]Restrictions based on the degree of new seedling establishment before grazing. Suggested at least 6 inches of grass or legume seedling growth which is approximately one month. Late fall seeding may require 3 to 5 months before the suggested 6-inch height is reached.
[C]Remove livestock to untreated grass pasture for 7 days before transferring livestock to broadleaf crop or pasture areas. Removal before slaughter statement only applies to animals grazing treated forage for 2 weeks immediately after application. Use only west of Mississippi River.
[D]Be sure to check individual product labels for restrictions and use rates due to the large number of formulations available.
[E]One year if more than 1.5 gal/A rate used.
[F]If no more than 20 lbs per acre used.
[G]Withdrawal not needed if 2 weeks or more time elapsed since application.

CRP Acres Establishment

PREPLANT OR PREEMERGENCE

See NebGuide G89-905, *Weed Control on CRP Acres* for more information.

Herbicide	Commercial[3] product/A	Application time	Remarks and approximate Cost/A
AATREX 90 DF (NEB. STATE LABEL)	2.2 lb	PPI or PRE	Use only on loam or finer textured soils containing 1% or more organic matter. For use on big bluestem, eastern gamagrass and switchgrass. Cost: $6.64.
ROUNDUP	1 pt	Before or at grass seeding	Will control most emerged seedling grass and broadleaf weeds. Apply Roundup 10 GPA carrier or less and include surfactant at 0.5% v/v. Ammonium sulfate added at 17 lbs per 100 gal solution improve Roundup performance. Cost: Roundup $5.77.
2,4-D AMINE (4) or ESTER (4)	1-2 pt	At least 30 days before grass seeding	Controls most broadleaf annual weeds. Both treatments may injure grass seedlings if applied less than 30 days before planting. Cost: 2,4-D $1.68-$3.38; Landmaster BW $5.98-$10.77.
LANDMASTER BW	40-72 oz		
PROWL (3.3)	1.2-2.4 pt	PPI or PRE	For use on legumes only. Incorporate immediately for best results. Cost: Prowl $4.46-$8.93; Treflan $4.13-$6.21.
TREFLAN	1-1.5 pt	PPI	

POSTEMERGENCE

For established grass, see Pastures and Ranges, page 36.
For specific weeds, see Troublesome Weeds and Woody Plants, page 45-53.

ALLY**	0.1 oz	After 3-4 leaf stage of grass	Controls most broadleaf weeds. Do not use on soils with pH greater than 8.0. Do not use on grass/legume mixtures. Add surfactant at 0.25% v/v. Cost: $2.85.
BANVEL + 2,4-D LV Ester (4)	0.25-0.5 pt 0.5-1 pt	After 5-leaf stage of grass	Controls most broadleaf weeds. Use lower rates warm-season grasses. Do not use on grass/legume mixtures. Established grasses may be treated with 0.5-1 pt Banvel + 0.5-2 pt 2,4-D for perennial weed control. Cost: $3.17-$12.68.
BUCTRIL	1.5-2 pt	After 3-leaf stage of grass	Controls many broadleaf weeds. Apply in minimum 10 GPA by air. May be used on grass/legume mixtures after third trifoliate leaf stage of alfalfa. May be tank mixed with 2,4-D or MCPA for improved control. Tank mix may injure or kill legumes. Cost: $9.83-$13.11.
CURTAIL	2-4 pt	Established grasses	Use only on grasses established one season or longer. Controls most broadleaf weeds including thistles. Do not use on grass/legume mixtures. Cost: $8.48-$16.96.
ROUNDUP[1]	12-16 oz	Early spring or late fall before desirable grasses break dormancy	Do not use ammonium sulfate. Cost: $4.33-$5.77.
2,4-D AMINE (4) or 2,4-D ESTER (4)	1 pt 0.5 pt	After 5-leaf stage of grass	Controls most broadleaf weeds. Reduce rate 25% if used on warm-season grasses. Will injure or kill legumes. Cost: $0.84-$1.34.

**Ally can be applied postemergence only at 0.1 oz/A to the following grasses: blackwell switchgrass; blue grama; big, little, plains, sand, and ww spar bluestem; buffalo grass; green sprangletop; Indian grass; kleingrass; atherstone, sand, weeping, and wilmar love grass; orchard grass, Russian wild-rye, sideoats grama; and crested, intermediate, western, tall, bluebunch, pubescent, slender Siberian, streambank, and thickspike wheatgrass.

Non-Crop Acres

Area or Use	Herbicide[5]	Commercial Product[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
ROADSIDES (Broadleaf weed control)	2,4-D	1 qt/A	Broadleaf weeds 2-6"	Repeat treatments may be necessary. Do not use near susceptible plants/trees. Cost: 2,4-D $3.37;' 2,4-D + Banvel $12.67.
	2,4-D + BANVEL	1 qt/A 1 pt/A		
	TELAR	.25-0.5 oz/A	Weeds 0-2"	Use with surfactant 1 qt/100 gal. Cost: $3.00-$6.00.
GRASS SUPPRESSION	OUST	1 oz/A	Grass 6-12"	Do not apply to bare soil. May move if soil moves. Suppresses height and heading of bromegrass and other cool season grasses. Do not use year after year in order to avoid development of resistant weeds. Trace amounts can harm crops and gardens. Imperative that label directions are read and followed. Cost: $8.00-$16.00.
IRRIGATION DITCHBANKS	KARMEX 80W	5-10 lb/A	Soon after ditches are open. Treat before weeds appear or soon after	Use enough water to insure good coverage. Use 50 mesh or coarser screens. May injure nearby trees and shrubs. Cost: Karmex $21.50-$43.00.
	2,4-D LV Ester (4)	1 qt/A	Broadleaf weeds 2-6"	Cost: $3.37.
	RODEO + X-77	4 qt in 10 gal or less water/A	Postemergence when good growth is present	Nonselective. No residual control. Use the lower rate on annual weeds and perennial grasses, the higher rates on perennial broadleaf weeds. Add X-77 at 1/2% v/v. Cost: $110.45.
LONG TERM VEGETATION CONTROL	ARSENAL	1 fluid oz/1000 sq ft	Treat before weeds appear or soon thereafter	Kochia has become resistant to triazines in some areas. Consult label for specific instructions on problem weeds and conditions. Do not use near root zones of trees or other desirable plants. Do not use on land subject to erosion unless erosion is controlled. Cost/1000 sq ft: Hyvar $4.74; Krovar $4.60; Karmex $1.25-$2.45; Princep $.55-$1.05; Spike $6.00-$12.00; Arsenal $1.44.
	HYVAR 80W or HYVAR XL 2WS	0.5 lb/1000 sq ft 0.75 pt/1000 sq ft		
	KROVAR I 80W	0.5 lb/1000 sq ft		
	KARMEX 80W	0.25-0.5 pt/ 1000 sq ft		
	PRINCEP 4L	0.25-0.5 pt/ 1000 sq ft		
	SPIKE 80W or SPIKE 5G	0.12-0.25 lb/ 1000 sq ft 2-4 lb/1000 sq ft		
PERENNIAL GRASSES (including bromegrass and quack grass)	ROUNDUP	2 qt/A in 10 gal or less water/A	Full foliage	Nonselective. Perennial grasses should have good top growth. Kills all annuals. Cost: Roundup $23.09.

Weed Response to Herbicides in Selected Crops

Plant response may be altered by growing conditions, genetic variation in crops and weeds, soil type, pH, organic matter and rates of application. Ratings may vary from season to season and geographical areas within the state. Ratings apply when herbicides are used at rates suggested.

Response Ratings: Ratings are for light to moderate weed populations, favorable conditions and weed growth stage as specified on product label. High weed populations, adverse conditions, or large weeds will reduce control.

E = Excellent (90-100%)
G = Good (75-90%)
F = Fair (50-75%)
P = Poor (0-50%)

Herbicide and Application Site (PPI or PRE on soil or POST on foliage)

Herbicides	Annual Morningglory	Barnyardgrass	Cocklebur	Crabgrass	Fall Panicum	Foxtail	Jimsonweed	Kochia	Kochia-Triazine Resistant	Lambsquarters	Nightshade	Pigweed	Ragweed	R. Thistle	Sandbur	Shattercane/Sorghum	Smartweed	Sunflower	Velvetleaf	W. Buckwheat	Crop Safety[a]	Recrop Interval in Months, When Changing to Nonlabeled Crop[b]
Potatoes																						
Eptam-ppi	G	E	P	E	E	E	P	F	F	G	E	G	F	P	E	E	P	P	P	G	G	1-2
Eptam + Sencor/Lexone	F	G	F	E	G	E	P	F	F	E	G	E	G	F	G	G	F	F	F	G	G	4-18
Eptam + Treflan or Prowl-ppi	F	E	P	E	E	E	P	E	E	G	F	G	P	F	E	E	P	P	P	F	G	6-12
Sencor/Lexone-pre	P	G	F	G	G	G	G	F	P	E	F	E	E	G	P	P	G	F	G	E	G	4-18
Sencor/Lexone + Dual or Turbo-pre	P	E	F	F	E	E	G	F	P	E	G	E	E	G	F	P	G	F	G	E	F	4-18
Sencor/Lexone-post	P	P	G	F	P	F	P	G	E	P	P	E	G	E	F	P	G	G	F	P	G	4-18
Poast-post	P	E	P	E	E	G	P	P	P	P	P	P	P	P	E	E	P	P	P	P	E	0
Fieldbeans																						
Basagran-post*	F	P	E	P	P	P	E	P	P	P	P*	P	G	P	P	P	E	E	G	G	E	0
Dual + Treflan-ppi	F	E	P	E	E	E	P	F	F	G	G	G	P	F	E	G	P	P	P	F	E	6-12
Eptam-ppi	G	E	P	E	E	E	P	F	F	G	E	G	F	P	E	E	P	P	P	F	G	1-2
Eptam + Treflan or Prowl-ppi	F	E	P	E	E	E	P	E	E	G	G	G	P	F	E	E	P	P	P	F	E	6-12
Poast-post	P	E	P	E	E	G	P	P	P	P	P	P	P	P	E	E	P	P	P	P	E	0
Eptam + Dual-ppi	F	E	P	E	E	E	P	F	F	G	E	G	P	F	E	G	P	P	P	F	E	2-5
Eptam + Lasso-ppi	F	E	P	E	E	E	P	G	G	G	E	E	P	F	E	G	P	P	P	F	E	2-4
Lasso or Dual-ppi	P	E	P	E	E	E	P	P	P	G	G	G	G	P	F	P	P	P	P	P	G	2-4
Lasso + Treflan-ppi	F	E	P	E	E	E	P	G	G	G	G	G	P	F	E	G	P	P	P	F	E	6-12
Eptam + Sonalan-ppi	F	E	P	E	E	E	P	E	E	G	G	G	P	F	E	E	P	P	P	F	E	6-12
Partner	P	E	P	E	E	E	P	P	P	G	G	G	P	F	P	P	P	P	P	P		2-4
Partner + Eptam	F	E	P	E	E	E	P	G	G	G	E	E	P	F	E	G	P	P	P	F	E	2-4
Sugarbeets																						
Eptam layby	G	E	P	E	E	E	P	F	F	G	E	G	F	P	E	E	P	P	P	F	G	1-2
Nortron-ppi	-	G	F	G	G	G	-	G	G	G	F	E	-	F	F	-	G	P	-	G	G	12
Ro-Neet-ppi	P	E	P	E	E	E	P	P	P	G	G	E	F	P	G	G	P	P	P	P	G	1-2
Betanal + Betanex-post																						
Betamix-post	F	P	-	P	P	P	F	F	F	G	F	G	F	P	P	P	F	F	P	G	G	1
Betamix + Nortron SC-post	F	P	P	P	P	G	F	G	G	G	E	G	F	F	G	P	P	G	F	G	G	12
Betamix + Stinger-post	F	P	E	P	P	P	G	F	F	G	E	F	E	F	P	P	G	E	P	E	G	12
Poast-post	P	E	P	E	E	G	P	P	P	P	P	P	P	P	E	E	P	P	P	P	E	0
Stinger-post	P	P	E	P	P	P	F	P	P	P	P	P	G	P	P	P	F	E	P	G	G	12
Onions																						
Dacthal 75W-pre	P	G	P	E	P	E	P	P	P	E	F	E	P	P	G	P	P	P	P	P	G	3-8
Buctril 2EC-post	E	P	G	P	P	P	E	F	F	G	E	G	E	G	P	P	E	E	E	E	G	0
Goal-post	P	P	G	P	P	P	-	F	F	G	F	G	-	F	P	P	-	F	-	G	10	
Fusilade-post	P	E	P	E	E	G	P	P	P	P	P	P	P	P	E	E	P	P	P	P	E	0
Poast-post	P	E	P	E	E	E	P	P	P	P	P	P	P	P	E	E	P	P	P	P	E	0
Vine Crops																						
Curbit-pre	P	E	P	E	E	E	P	G	G	G	F	G	P	G	G	G	P	P	P	P	G	4-13
Dacthal 75W-pre	P	G	P	E	P	E	P	P	P	E	F	E	P	P	G	P	P	P	P	P	G	3-8
Treflan-pre	P	E	P	E	E	E	P	G	G	G	P	G	P	G	G	G	P	P	P	P	G	6-12
Prefar 4E + Alanap-pre	P	E	G	E	F	E	-	-	-	G	-	G	G	-	F	F	-	G	-	G		4-6
Poast-post	P	E	P	E	E	G	P	P	P	P	P	P	P	P	E	E	P	P	P	P		0

[a]Crop varieties vary in their response to herbicides.
[b]Values will vary with soil texture, pH, organic matter, rainfall or irrigation, rotational crop and herbicide rate. For more information see NebGuide G74-180, *Herbicide Carryover.*
*Good control of hairy nightshade.

Potato and Fieldbeans

Herbicide	Commercial product per Acre: Sandy Loam < 1% OM	Silt Loam 1-2% OM	Silty-Clay Loam > 2% OM	Application Time, Remarks and Approximate Cost/A Broadcast
Potatoes				
EPTAM 7E	3.5 pt	3.5 pt	43.5 pt	PPI, DRAG-OFF or LAYBY — Apply and incorporate before planting or after potato plants have emerged. The Superior variety is sensitive to EPTAM. Cost: $11.97-$15.40.
EPTAM 7E	2.5 pt	2.5 pt	2.5 pt	PRE UP TO and JUST BEFORE DRAG-OFF — Incorporate chemical immediately after application. Set incorporation equipment so that herbicide is not concentrated over the row. The Superior variety is sensitive to EPTAM and injury may occur. Cost: Eptam + Treflan $12.69; Eptam + Prowl $14.72-$16.96.
+				
TREFLAN 4EC	1 pt	1 pt	1 pt	
EPTAM 7E	3 pt	3 pt	3 pt	
+				
PROWL (3.3)	1.2 pt	1.2 pt	1.8 pt	
EPTAM 7E	3.5 pt	3.5 pt	4.5 pt	PPI, DRAG-OFF or Early Postemergence. Apply and incorporate mechanically or through an irrigation sprinkler system. The Superior variety is sensitive to Eptam. Cost: $20.90-$33.24.
+				
SENCOR/LEXONE 4L	0.5 pt	0.5 pt	1 pt	
DUAL/DUAL II	1.5 pt	2 pt	2.5 pt	PPI, PRE, or DRAG OFF—If cool, wet soil conditions occur after application, Dual may delay maturity or injure Superior or other early maturing potato varieties. Cost: $11.93-$19.88.
SENCOR/LEXONE 4L	1 pt	1.5 pt	2 pt	PRE, PPI, or DRAG-OFF AS PER LABEL—Do not plant treated area to sensitive crops such as onions or sugarbeets during the next growing season. Superior and Atlantic varieties are sensitive to Sencor/Lexone. Cost: Dual + Sencor/Lexone $29.76-$36.93; Sencor/Lexone $17.05-$34.10; Prowl + Sencor/Lexone $21.52-$23.74; Turbo $24.82-$43.43.
SENCOR/LEXONE 4L	1 pt	1 pt	1 pt	
with				
DUAL/DUAL II	1.5 pt	2.0 pt	2.5 pt	
or with				
PROWL (3.3)	1.2 pt	1.2 pt	1.8 pt	
TURBO	2-2.5 pt	3-3.5 pt	3-3.5 pt	
Postemergence				
POAST	1-1.5 pt	1-1.5 pt	1-1.5 pt	Most susceptible grasses less than 4" tall. Potatoes tolerant at all growth stages. Add 2 pints of crop oil concentrate. Good coverage essential for effective control. Cost: $13.39-$20.08.
SENCOR/LEXONE 4L	0.5-1 pt	0.5-1 pt	0.5-1 pt	POST BEFORE WEEDS ARE 1" TALL—Highest rate for common sunflower and kochia. Do not use on red skinned or early maturing white varieties or within 60 days of harvest. Cost: $8.52-$17.04.
Fieldbeans				
Preplant				
DUAL/DUAL II	1.5 pt	2 pt	2.5 pt	PPI or PRE—Surface mixing will improve weed control and reduce crop injury. Cost: $15.90-$19.88.
EPTAM 10G	30 lb	30 lb		PPI—Apply to dry surface soil; immediately incorporate with disc or field cultivator. Apply layby at time of last cultivation as a directed spray or direct granules to the base of the plants before bean pods start to form. Do not feed or pasture vines within 45 days after application. Cost: $11.97.
or				
EPTAM 7E	3.5 pt	3.5 pt		
EPTAM 7E	2.5 pt	2.5 pt		PPI—Apply to dry surface soil, immediately incorporate with a disc or field cultivator. Sonalan, Treflan, or Prowl may injure fall seeded small grains, or spring seed sugarbeets or sorghum the following year. Cost: Eptam + Dual $20.48; Eptam + Lasso $18.11; Eptam + Sonalan $16.62; Lasso $19.28; Partner $18.67; Sonalan + Dual $20.00; Sonalan + Lasso $17.63; Eptam + Prowl $17.48; Eptam + Treflan $12.69.
with				
SONALAN	2 pt	2 pt		
or with				
PROWL (3.3)	2.4 pt	2.4 pt		
or with				
TREFLAN	1 pt	1 pt		
EPTAM 7E	2.5 pt	2.5 pt		
with				
DUAL/DUAL II	1.5 pt	1.5 pt		
or with				
LASSO	4 pt	4 pt		
LASSO	3 qt	3 qt		
PARTNER	4.5 lb	4.5 lb		

Potato and Fieldbeans

Herbicide	Commercial product per Acre: Sandy Loam < 1% OM	Silt Loam 1-2% OM	Silty-Clay Loam > 2% OM	Application Time, Remarks and Approximate Cost/A Broadcast
Fieldbeans , continued				
PARTNER + EPTAM 7E or with TREFLAN	3.0 lb 2.5 pt 1 pt	3.0 lb 2.5 pt 1 pt		Apply to dry surface soil, immediately incorporate. Treflan may injure fall seeded small grain or spring seeded sugarbeets or sorghum the following year. Cost: Partner $18.67; with Eptam $21.00; Partner + Treflan $22.80; Treflan + Dual $16.05; Treflan + Lasso $16.98.
TREFLAN 4EC with DUAL 8E or with LASSO	1 pt 1.5 pt 4 pt	1 pt 1.5 pt 4 pt		
Postemergence				
BASAGRAN + COC.	0.75-1 qt 1 qt			POSTEMERGENCE—At least one trifoliate leaf fully expanded. Broadleaf weeds 2-4" tall. Weeds showing moisture stress or over 6" tall are poorly controlled. Controls hairy but not eastern black nightshade. Cost: $13.15-$17.18.
POAST COC	1-1.5 pt			POSTEMERGENCE...Susceptible weeds less than 4" tall. Fieldbeans tolerant at all + growth stages. Good coverage essential. Cost: $15.51-$22.20.
Harvest Aid				
GRAMOXONE EXTRA	1-1.5 pt			Desiccant. Apply when at least 80% of pods are yellowing and no more than 30% of leaves still green. Do not harvest within 7 days of application. Add 1 qt nonionic surfactant/100 gal. Cost: $3.84-$5.77.

Sugarbeets

Herbicide	Commercial Product per Acre: Sandy Loam 1% OM: Broadcast	Sandy Loam 1% OM: Product/7" 22" Row	Sandy Loam 1% OM: Band 30" Row	Silt Loam 1-2% OM: Broadcast	Silt Loam 1-2% OM: Product/7" 22" Row	Silt Loam 1-2% OM: Band 30" Row	Application Time, Remarks and Approximate Cost/A Broadcast
	Sugarbeets, No-Till in Rye or Winter Wheat						
ROUNDUP	1.5-2 pt	9 oz	6.5 oz	1.5-2 pt	9 oz	6.5 oz	Apply in spring when rye or wheat are 6" to 10" tall and before sugarbeets have emerged. Cost: $2.34-$11.55.
PPI or PRE							
NORTRON SC	2.2 pt	11 oz	8 oz	3.7 pt	19 oz	16 oz	PPI or PRE—Furrow irrigation apply preplant and incorporate 1" to 2"; for sprinkler irrigation apply preemergence at planting or shortly after and immediately irrigated with 0.5" water. Cost: $10.37-$45.60.
RO-NEET 6E	2.0 pt	10 oz	7.5 oz	3.3 pt	17 oz	12 oz	PPI—Immediately mix into dry soil with power incorporator 2" to 3". Crop injury may occur on sandy soils below 1% organic matter or with highly saline or alkaline soil conditions. Use lower rate if postemergence treatments are planned. Primarily annual grass control. Cost: $3.01-$21.54.
Layby							
EPTAM 7E or EPTAM 10G	2.25 pt 20 lb	11.5 oz 6 lb	8 oz 4.5 lb	3.5 pt 30 lb	18 oz 9.5 lb	13 oz 7 lb	Apply Eptam after thinning and clean cultivation; incorporate immediately 2" deep with a cultivator. Cost: $1.71-$11.98.
TREFLAN 4EC	1 pt	5 oz	3.5 oz	1.25 pt	6 oz	4.5 oz	Sugarbeets 2" to 6" tall. Cover exposed beet roots with soil before Treflan application to reduce root girdling. Cost: $.91-$5.18.

Sugarbeets, continued

Postemergence

Herbicide	Rate Per Acre: Pints Brdcst	Rate Per Acre: Ounces Per 7" Band 22" Row	Rate Per Acre: Ounces Per 7" Band 30" Row	Application Time	Remarks and Approximate Cost/A Broadcast
BETAMIX	2-3	10-15	7.5-11	Any stage of sugarbeet growth Weeds cotyledon stage. Repeat in 5-7 days.	Use lower rates on small beets or when using a split application. Works best on Nortron or Ro-Neet treated fields but wait till 4-leaf stage if beets show signs of injury. Treat in late afternoon to reduce injury. Use highest rate as weed size increases. Cost: Broadcast $21.25-$63.75; 22" row $6.64-$20.58; 30" row $4.98-$14.61.
BETAMIX with NORTRON SC or with STINGER	2 0.33 0.25	10 1.7 1.3	7.5 1.2 1.0	Sugarbeets two leaf stage, Repeat in 5-7 days	
BETAMIX 1.3EC	4.5-6	23-31	17-22	Sugarbeets 4 true leaf stage	
POAST	1-2	5-10	3-7	Grass 1-3"	Use higher rate for larger grass or grass under drought stress. Requires 1 qt crop oil concentrate per acre. See label. Cost: $13.38-$26.77
STINGER	0.25-0.66	1.3-3.4	1.0-2.5	Beets, 2-8 true leaves; Canada thistle rosette to pre-bud.	Use lower rates for annual weeds and higher rates for Canada thistle. Do not plant or rotate for 1 year after treatment to any crop except small grains or corn. Cost: $14.57-$38.46.

Vine Crops and Onions

Herbicide	Commercial Product per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
Melons and Cucurbits			
CURBIT	3-4.5 pt	Pre-emergence	Apply postplant to the soil surface prior to weed emergence. Apply to seeded crop prior to crop emergence or apply as a banded spray between rows after crop emergence or transplanting. Do not preplant incorporate or do not use under plastic mulch. Cost: $14.60-$21.95.
PREFAR + ALANAP-L	4-6 qt 4-8 qt	Preplant	Immediately incorporate to a depth of 1". Use lower rate on sandy soil. Controls many annual grasses and broadleaf weeds. Cost: $48.80-$80.00.
DACTHAL 75W	8-14 lb	Crop 4-5 true leaves	Crop should be weeded prior to application. Controls annual grasses. Use lower rate on sandy soil. Cost: $38.40-$67.20.
TREFLAN	1-1.5 pt	Crop 3-4 true leaves	Direct material to soil between the rows and mechanically incorporate. Controls germinating annual grasses and some broadleaves. Use the lower rate on sandy soils. Cost: $4.14-$6.21.
POAST	1-1.5 pt	Grasses most susceptible under 4"	Do not apply within 14 days of harvest. Crop oil concentrate and good coverage essential for effective control. Cost: $13.39-$20.08.
COMMAND (Pumpkins only)	2.0 pt	Preplant	Immediately incorporate. Use on pumpkins only. Controls many annual grasses and broadleaf weeds. Cost: $19.81.
Onions			
DACTHAL 75W	8-14 lb	Preemergence at seeding or transplanting and/or at layby	Preplant incorporation not recommended. Use lower rate on soils with less than 1% organic matter. Cost: $38.40-$67.20.
BUCTRIL	1-1.5 pt	Postemergence; onions should have 2-5 true leaves	Water volume is important. Use 50-70 gallons of water per acre. Do not add surfactants. Cost: $6.55-$9.83.
GOAL	0.6-1 25 pt	Onions, 2 fully developed true leaves; weeds, 2-4 leaves	Do not apply to onions under drought stress. Do not mix Goal with oil, surfactant or fertilizer. Cost: $5.76-$12.00.
FUSILADE 2000	1.5 pt	Shattercane and corn 12-18". Other annual grasses less than 4"	Crop oil concentrate and good coverage essential for effective control. Don't tank mix with Buctril. Cost: $13.39-$20.08.
POAST	1-1.5 pt		

Trees and Shrubs Including Shelterbelts, Christmas and Fruit Trees*

Herbicide	Rate Per Acre	Application Time	Remarks and Approximate Cost/A Broadcast
*CASORON 50W or CASORON 4G or *NOROSAC 4G	8.0 lb 100 lb 100 lb	Preemergence on trees at least 2 years old	Apply a 20" band on each side of tree row after trees are planted. Some injury to trees may result on low organic matter soil. Cost: $125.00.
DACTHAL 75W	14-16 lb	Preemergence	Application must be made before weed seed germination. Two applications may be necessary for season-long weed control. Cost: $67.20-$76.80.
2,4-D AMINE (4)	1 qt	Postemergence to weeds	Keep off new bark and foliage. Controls broadleaf weeds. Cost: $6.53.
*FUSILADE 2000 or *POAST	2 pt 2 pt	Postemergence before grasses tiller	Use on fruit trees limited to nonbearing trees. Add 1 qt crop oil concentrate per acre. Thorough coverage required. On ornamentals use nonionic surfactant with Fusilade. Cost: Fusilade $23.10; Poast $26..77
GOAL	2-4 qt	Pre- or post-emergence to weeds	Conifers only. Grasses should be treated before they are beyond 2-leaf stage. Use before bud break or after new growth hardens. Cost: $38.40-$76.80.
*KARMEX 80W	2.5-5 lb	Preemergence on trees at least 2 years old	Karmex use limited to conifers, honey locust, green ash, apples and peaches. Cost: $10.75-$21.50.
*GRAMOXONE EXTRA	1.5-3 pt	Directed post-emergence	Nonselective contact herbicide. Keep spray off tree foliage. Add X-77 surfactant. Cost: $5.76-$11.54.
*PRINCEP 80W	1-5 lb	Preemergence on trees at least 2 years old; use only on fruit trees planted 1 year or longer	Kochia may become resistant with repeated use. Use 1 lb on sandy, low organic matter, or high pH soils. Apply 20" band on each side of tree row after trees are planted. Some injury to trees may result on low organic matter soils. Gives poor control of Russian thistle. Cost: $5.25-$17.40.
*ROUNDUP	1-4 qt in 10 gal water/A	Directed post-emergence	Do not spray green bark or foliage. Spray may contact brown bark. Use lower rate on annuals. Add surfactant 1/2% v/v with 1 qt rate. Cost: $11.54-$46.19.
*SOLICAM 80WP	2.5-5.0 lb	Preemergence, late fall or early spring	Fruit trees only. May be combined with Karmex and Princep for improved broadleaf control. Cost: $27.00-$54.00.
*SURFLAN A.S.	2-4 qt	Preemergence	Fruit trees only. May be combined with Karmex and Princep for improved broadleaf control. Cost: $33.50-$67.00.
TREFLAN	1-2 pt	Preplant	Incorporate 2-3" deep prior to planting. If applied after planting adjust machine to throw treated soil towards trees in the row. Cost: $4.13-$8.27.

*Denotes products registered for use on fruit trees.

Aquatic Weed Control

Slow Moving and Still Water

Important: Before treating any body of water containing fish, contact the Game and Parks Commission local representative. Whenever possible treat before aquatic weed growth becomes dense to avoid fish suffocation due to oxygen depletion from decaying vegetation. When dense weed growth is present in fish containing waters, treat no more than one-half of the area. After vegetation in the treated area disappears treat the remainder of the water.

Herbicide	Rate Per AF (Acre Foot) or SA (Surface Acre)	Weeds Controlled	Application Time	Remarks and Approximate Cost
COPPER SULFATE CRYSTALS	5.4 lb/SA	Algae (Moss) Chara	When growth first becomes visible	No restrictions on water usage at recommended rates except for use with sheep. Copper compounds can be corrosive to equipment. Use Chelated Copper in high pH water. Cost/SA: Copper Sulfate $3.90.
COPPER CHELATES (Cutrine plus, Algetol or Algecide)	0.67-1.25 gal/AF			
AQUATHOL G or AQUATHOL K	13-135 lb/AF 0.3-3.2 gal/AF	Burreed Coontail Milfoil Pondweed Naiad	Water has warmed and growth is visible	Handle with caution, extremely irritating. Overdose can be harmful to fish. Do not use water within 14 days for irrigation or domestic uses. Cost/AF: $14.31-$148.50.

Aquatic Weed Control

Slow moving and still water, continued

Herbicide	Rate Per AF (Acre Foot) or SA (Surface Acre)	Weeds Controlled	Application Time	Remarks and Approximate Cost
AQUAZINE (Simazine)	1.7-6.8 lb/AF	Algae (Moss) Chara Coontail Naiad Pondweed Milfoil	Spring before heavy weed growth appears	Treat total water volume. Best suited for still water. Do ont use water for irrigation or livestock use. Cost: $15.05-$60.18.
DIQUAT	1-2 gal/SA	Arrowhead Cattail Bulrush Elodea Pondweed	Post on foliage or on surface for submerged species	Do not use for 10 days for swimming, livestock or irrigation. Not effective in water with suspended silt. Cost: $77.00-$154.00.
NOROSAC 10G	100-150 lb/SA	Coontail Duckweed Naiad Milfoil	Before weed growth occurs	Do not use for irrigation, livestock or humans. Do not use fish for 90 days. Cost: $125.00-$187.50/ acre.
2,4-D AMINE or ESTER (4) or 2,4-D 20G	1.50-4 qt/SA 7.50-20 lb/SA	Water Hyacinth Water Lily Water Primrose Duckweed Arrowhead Pondweed Milfoil	Use sprays on emerged weeds when in full leaf stage. Apply granules when first growth appears	Do not use water for 14 days for livestock or irrigation. Cost: $5.06-$20.26.
RODEO + ORTHO X-77	1 gal/SA 2 qt	Most annual and perennial weeds	Apply to well emerged vegetation	Can be applied to most water situations. No restrictions on use of water for irrigation, recreation and domestic purposes. $119.20.

Stock and Nurse Tanks

Dissolve 1 oz copper sulfate in 1 pt of water in a glass jar. Add 7.5 tablespoons of the prepared solution to each 1,000 gallons of water. Mix thoroughly. Water can be used for crop spraying and livestock watering. Increase rate if water is extra hard. An alternative practice is to paint the nurse tank black to prevent algae growth.

CUT STUMP TREATMENTS—TREES and WOODY PLANTS

Herbicide	Herbicide Concentration	Remarks and Cost
2,4-D LV ESTER (4)	2 qt/10 gal diesel	Use to prevent resprouting of cut stumps. Apply to runoff to freshly cut surface. Delayed applications less effective. See NebGuide G84-704, *Brush and Woody Plant Control.* Cost/10 gal of solution: 2,4-D ester $6.75 + diesel, Crossbow $21.60 + diesel.
CROSSBOW	2 qt/10 gal diesel	
TORDON RTU	Use undiluted	

Troublesome Weeds and Woody Plants

Best control will be obtained if treatments are made when plants are actively growing. Treatment in following years may be required. An application just before flowering and a second application on fall regrowth will give best results on most perennials. Dust on leaves may interfere with herbicide activity. See NebGuide G84-704, *Brush and Woody Plant Control*, and G88-871, *Chemical Control of Rangeland Weeds.*

Weed	Herbicide[5]	Product Per Acre or Per 100 Gallons[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
ALFALFA (for control of alfalfa in corn or sorghum)	2,4-D AMINE (4) + Banvel (corn only) or Banvel	0.25 pt 0.5 pt 0.5 pt	Alfalfa with 4-6" growth	Use drop nozzles on crop taller than 8". See no-till section of corn, sorghum or soybeans to kill alfalfa prior to planting. Sorghum 3-5 leaf stage. Cost: 2,4-D + Banvel $4.98; Banvel $4.65.
ALFALFA (for control prior to planting wheat, field beans, and potatoes)	2,4-D LV Ester (4)	1.5-2 qt	Alfalfa with 4-6" new growth	Delay planting wheat 15 days and delay planting fieldbeans and potatoes 30 days after application. Ester formulations are more persistent than amine formulations. Cost: $5.05-$6.74.

Troublesome Weeds and Woody Plants, continued

Weed	Herbicide[5]	Product Per Acre or Per 100 Gallons[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
ARTICHOKE JERUSALEM	2,4-D AMINE (4) + Banvel	0.5 pt 0.5 pt	12-18" tall	For use in corn. Use drop nozzles on corn taller than 8". Cost: $5.32.
	Curtail	2.0 pt	12-18" tall	For use where no crop is present. Cost: 2,4-D $3.37; Curtail $8.48.
	2,4-D LV Ester (4)	1 qt	18-24" tall	
BARNYARD SAGE	Command + Canopy or Preview or Sencor/Lexone DF	1.5-2.0 pt 5-8 oz 6-10 oz 0.33-0.5 lb	PPI	Do not use Canopy or Preview on soils above pH 6.8. Reduce Sencor/Lexone rate 1/3 on calcareous soil. Cost: Command + Canopy $16.30-$22.13; Command + Sencor $23.43-$32.80; Pursuit $18.59.
	Pursuit	4 oz		
BLUE MUSTARD	2,4-D LV Ester (4) 2,4-D Amine (4)	0.5 pt 1 pt	Nov. 15-Mar. 15 before blue mustard stem elongation	Use only on fully tillered wheat. Cost: $.85-$1.34. See NebGuide G74-92, *Blue Mustard Control.*
	Ally 60 DF + 2,4-D LV Ester (4)	0.1 oz 4.0 oz		Do not use on soils with pH of 7.9 or higher. Use only on continuous wheat or wheat fallow. Cost: Ally + 2.4-D $3.19; Amber + 2.4-D $3.50- $3.92.
	Amber + 2,4-D LV Ester (4)	0.28 oz 4-8 oz	Spring, 2-4" broadleaf weeds	
BUCKBRUSH (snowberry)	2,4-D LV Ester	1-2 qt	Full foliage (May 10-25)	Use sufficient water to insure good coverage. Cost: $3.37-$6.74.
BUFFALOBUR	Atrazine 4L[2]	2 qt	Preplant or pre-emergence in corn	Reduced rates less effective. Cost: $6.31
	Buctril	1.5 pt	Weeds 3-5 leaf stage in corn or sorghum	Plants taller than 4" not controlled. Cost: $9.83.
	Blazer	1 qt	Weeds 3-4 leaf stage in soybeans	Weeds must be small. Follow-up treatments necessary. Cost: $14.41.
	Eradicane 6.7E	5 pt 5.5 pt	Preplant to corn	Apply to dry surface soil and immediately incorporate by cross tandem discing or similar mixing. Cost: $14.73-$16.21.
	2,4-D LV Ester (4) + Banvel	0.5 pt 0.5 pt	Postemergence on corn	Plants must be small. Cost: $5.50.
BURCUCUMBER and WILD CUCUMBER	Buctril	1.5 pt	Weeds 3-5 leaf stage in corn	Thorough coverage required. Cost: $9.83.
	Atrazine 4L[2]	2 qt	Pre-emergence in corn	Atrazine can also be used postemergence. Cost: Atrazine $6.31; Princep $12.60.
	Princep 4L	3 qt	Pre-emergence in trees or corn	
	Sencor/Lexone 4L (split-application)	0.5 pt + 0.5 pt	Preplant plus pre-emergence	Split-shot in soybeans. Cost: $17.83.
BURSAGE, (Skeletonleaf and Woollyleaf)	Tordon 22K	2 qt	Flower bud stage or when growing actively	Non-crop areas. Tordon may remain in soil for three or more years. Cost: $45.62.
	2,4-D LV Ester (4) + Banvel	1 qt 1 qt	June or when growing actively	See remarks for field bindweed. If soil moisture conditions are poor, use oil-water emulsions as a carrier. Cost: $21.98.
CANADA THISTLE	Tordon 22K	1 qt	Fall—actively growing or spring—early flower bud	For non-crop areas and spot treatment in pasture and range. Tordon may remain in the soil for 3 or more years. Cost: $22.81. See NebGuide G80-509, *Canada Thistle Control.*
	Roundup	2-3 qt in 10 gal or less water	Flower bud stage or in fall when growing actively	Idle ground or spot treatment in cropland before head or pod fill of crop. Avoid tillage for 3 days. Cost: $23.09-$34.64.

Troublesome Weeds and Woody Plants, continued

Weed	Herbicide[5]	Product Per Acre or Per 100 Gallons[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
CANADA THISTLE (cont'd)	Banvel	1-2 qt	Fall—actively growing or spring early flower bud	Idle ground or grassland. Avoid tillage for 5 days. Injury to forage grasses may occur. Broadleaf crops may be injured for 2 year, after treatment. Cost: $18.61-$37.22.
	Curtail	2-4 pts	Rosette to pre-bud or in fall when actively growing	Curtail—Use lower rate in wheat and barley, higher rate in fallow pasture or CRP. Stinger used in sugarbeets and corn. Cost: Curtail $8.48-$16.96; Stinger $29.14-$39.04.
	Stinger	0.5-0.67 pt		
	Ally + Surfactant	0.1 oz	4"-6" stage Prebloom to bloom or in the fall when actively growing	Escort or Telar for use in non crop land only. Use Ally in wheat, barley, or fallow to be planted to winter wheat. One application suppresses Canada thistle. Cost: $3.05-$10.77.
	Telar + Surfactant or Escort + Surfactant	1.0 oz 1.0 oz		
CACTUS (Prickly Pear)	Tordon 22K	1-2 pt	Early summer	Spot treatment in pasture and grazingland. Cost: $11.41-$22.81.
CATTAILS	2,4-D LV Ester (4)	1.5 gal + 5% diesel oil + 0.5% emulsifier	Boot to early flowering	Use the equivalent of 150 gal of water per acre. Retreat regrowth as necessary. Cost: 2,4-D $20.22.
	Roundup	3 qt in 10 gal	At flowering	Avoid water contamination. Cost: $34.64.
CHEAT GRASS	See Downy Brome			
COCKLEBUR	See Velvetleaf — For additional treatments			Cost: $9.52-$19.05.
	Beacon	0.38-0.76 oz		Post in corn use COC or nonionic surfactant.
COTTONWOOD, WILLOWS & SIBERIAN ELM CHINESE ELM	2,4-D LV ester (4)	2-3 qt	Full foliage (June-July); basal treatment anytime	2,4-D with aerial equipment at least 5 gal carrier, annual treatment for 2-3 years may be necessary. Basal or stump treatment: 2 qt of herbicide/10 gal of diesel; apply to point or runoff. Cost: 2,4-D $6.74-$10.11; Crossbow $43.00.
	Crossbow	1 gal		
	Krenite S	2-3 gal in 100 gal water + surfactant	Late July, Aug. and Sept.	Has little effect on grasses. Results show the following spring. Cost: $116.70-$175.05.
	Spike 20P	0.25 oz/1" dia	Spring or fall	Apply under drip line. Cost: $8.60/lb.
	Velpar RP	4 ml/1" dia	Spring with spot gun to tree base	Cost: $.08/tree inch.
DEVILSCLAW	See Velvetleaf for control in corn & sorghum			
DIFFUSE KNAPWEED	SEE SPOTTED KNAPWEED			
DOCK (Curled & Pale)	2,4-D LV Ester (4) + Banvel	1 qt 0.5 pt	Before flowering in spring or fall	For use on idle ground or grassland. Cost: $8.02.
DOGWOOD	Banvel	1-2 qt	Full foliage during June	Ground application only. Observe all drift precautions when using within 1/2 mile of sensitive crops. Cost: Banvel $18.61-$37.22; Crossbow $43.00-$64.50.
	Crossbow	1.0 to 1.5 gal		
	Spike 20P	0.25 oz/1" dia	Spring or fall	Apply under drip line. Cost: $8.60/lb.
DOWNY BROME	Roundup	12-16 oz	Fall or early spring when desirable grasses are present	Cost: Roundup $4.33-$5.77; Oust $8.00.
	Oust (non-cropland)	1-2 oz	Early spring	
	Far-Go 10G	15 lb	Preplant to winter wheat	Approximately 50%-80% control. With Far-Go wheat must be planted with hoe drill. Will not control emerged downy brome. Cost: Far-Go $15.00; Treflan $4.13-$6.21.
	Treflan	1-1.5 pt		
	Alternate system			Crop rotation—Include a late spring seeded crop in the rotation. See NebGuide G78-422, *Downy Brome Control.*

Troublesome Weeds and Woody Plants, continued

Weed	Herbicide[5]	Product Per Acre or Per 100 Gallons[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
FIELD BINDWEED (when treating crops adjust rates)	2,4-D LV Ester (4)	1 qt	Vigorous fall growth or flower bud stage in spring	Avoid tillage 5 weeks before and 1 week after application. Do not plant small grains for 15 days after 2,4-D and 45 days after Banvel. Plan to treat for several consecutive years. Cost: 2,4-D $3.37; 2,4-D + Banvel $8.02-$12.31.
	2,4-D LV Ester (4) + Banvel	1 qt + 0.5-1 pt		
	Banvel	1-2 pt	Late summer or fall when actively growing	For Roundup apply in 10 gal or less water /acre add 2 qt X-77 or similar surfactant plus 17 lb ammonium sulfate per 100 gallons. Avoid tillage for 5 days. Do not plant small grains for 15 days 2,4-D and 45 days per pint of Banvel. Broadleaf crops may be injured 2 years after high rates of Banvel in western Nebraska. Cost: Roundup + 2,4-D $6.44; Roundup + Banvel $10.42; Banvel $9.31-$19.61; Landmaster BW $8.08.
	Landmaster BW	54 oz		
	Roundup + 2,4-D Amine (4) or Banvel	1 pt + O.5 pt or 0.5 pt		
	Tordon 22K + 2,4-D LV Ester (4)	1 pt + 2 pt	Fall after wheat harvest.	Use in a wheat fallow rotation. Retreat with 2,4-D or Landmaster BW in spring. Cost: $14.78.
HEMP (Marijuana)	2,4-D LV Ester (4)	1 qt	2-12" tall	Cost: $3.37.
HEMP DOGBANE	2,4-D LV Ester (4)	0.5-1 qt	Flower bud stage, spring	Use lower rates in crops. Cost: $1.69-$3.37.
	2,4-D LV Ester (4)	1 qt	After corn is in the dough stage. Apply to dogbane before leaves start to turn yellow	Dogbane roots should have pink swollen buds. Cost: 2,4-D $3.37. See NebGuide G84-665, *Hemp Dogbane*.
	Roundup	4 qt	Late summer or fall	Idle ground or spot treatment in cropland before head or pod fill of crop. Avoid tillage for at least 7 days after treatment. Cost: $46.19.
HOARY CRESS	2,4-D LV Ester (4)	2 qt	Rosette stage in the fall or early bud in spring	Suppression only. Growth starts in early spring. Treat twice a year for 2 to 3 years. Cost: $6.74.
IRONWEED	2,4-D LV Ester (4)	1.5 qt	Flower to bud stage	Cost: $5.05.
JOHNSONGRASS (see shattercane for seedling control)	Accent	0.67 oz	6-16"	See corn postemergence for application restrictions. Split-applications more effective. Cost: $18.79.
	Beacon	0.75		
	Fusilade 2000	1.5 pt	12-18" new growth	Can be used in soybeans. Add 1 qt/A crop oil concentrate. Cost: Fusilade $17.65; Poast $20.53.
	Poast + Am sulfate	1.5 pt + 2.5 lb		
	Roundup	2-3 qt	12" through boot stage	Idle ground or spot treatment in cropland before head or pod fill of crop. Avoid tillage for 7 days. Cost: $23.09-$34.64.
JOINTED GOATGRASS	SEE DOWNY BROME			
KNAPWEED—See specified knapweed—Russian, spotted or diffuse				
KOCHIA (triazine resistant). May have to spray twice or cultivate for row crops.				
	Banvel	0.5 pt	Preplant to corn or sorghum. Kochia less than 2" tall	Wait 20 days before planting sorghum. Include appropriate pre-emergence herbicides. Cost: Fallow Master $9.62; Landmaster BW $6.58; Banvel $3.40; Cyclone $4.90.
	Landmaster BW	54 oz	Preplant to corn sorghum or wheat Kochia less than 4" tall	
	Fallow Master	44 oz		
	Cyclone	1.5 pt		

Troublesome Weeds and Woody Plants, continued

Weed	Herbicide[5]	Product Per Acre or Per 100 Gallons[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
KOCHIA (cont'd)			Postemergence to corn or sorghum	
	Banvel	0.5 pt		Sorghum must have 3-5 leaves when using Banvel. Use higher Buctril rate for taller kochia. Buctril + Banvel on corn only. Use higher rates on dense stands of Kochia. Cost: Banvel $4.65; Buctril $6.55-$9.93; Buctril + Banvel $11.20-$14.58; Buctril + Atrazine $17.84; Buctril/Atrazine + Banvel $13.16-$15.49; Marksman $6.12-$9.19; Tough $21.70; Tough + Atrazine $11.62.
	Buctril	1.0-1.5 pt	Kochia less than 2" tall	
	Buctril + Banvel	1-0-1.5 pt + 0.5 pt		
	Buctril + Atrazine	2 pt + 3 pt	Kochia less than 2" / Kochia less than 4"	
	Buctril/atrazine + Banvel	2.5 pt + 0.25 to 0.5 pt	Kochia less than 4" tall	
	Marksman	2 to 3 pt		
	Tough + Atrazine	0.5 pt + 0.5 pt	Corn only	
	Tough	1 qt		
	Command 4EC	1.5 pt	Preplant incorporate in soybeans, before kochia emerges	Do not rotate to small grains. Cost: $14.86.
	Command 4EC + Roundup	1.5 pt + 1 pt	Preplant to soybeans	A postemergence herbicide may be needed to control kochia escapes. Cost: $20.63.
	Pursuit Plus + Roundup	2.5 pt + 1 pt	Preplant to soybean 15-30 days	Cost: $29.53.
LEAFY SPURGE	2,4-D LV Ester (4)	2 qt	Bud stage spring or late fall	Retreatment necessary. Annual applications gradually reduce infestation. Cost: 2,4-D LV $6.74; 2,4-D + Tordon $14.10. See NebGuide G87-8343, *Leaf Spurge.*
	2,4-D Amine (4) + Tordon 22K	1 qt + 1 pt		
	Tordon 22K	2-4 qt	Fall or spring Sept. to early Oct.	Tordon for non-crop areas and spot treatment in pasture and range. Roundup for use in trees or areas where grass stand is not a factor. Cost: Tordon $45.62-$91.24; Roundup + 2,4-D $14.24.
	Roundup + 2,4-D Amine (4)	1 qt + 1 qt		
LOCUST (Honey and Black)	Banvel	2 qt	Full foliage during June; cut stump or basal treatment anytime	Ground application only. Observe all drift precautions. See cottonwood for basal and cut stump treatment. Cost: Banvel $37.22; Crossbow $43.00-$64.50.
	Crossbow	1.0-1.5 gal		
	Spike 20P	0.25 oz/1" dia	Spring or fall	Apply under drip line. Cost: $8.60/lb.
	Velpar RP	4 ml/1" dia	Spot gun-spring	Cost: $0.08/tree inch.
MARESTAIL (Horseweed)	2,4-D LV Ester (4)	1 qt	Prior to bolt	Cost $3.37
	Roundup	24 oz	Before 6" tall	Cost $8.66
MILKWEED, COMMON	2,4-D LV Ester (4) + Banvel	1 qt + 0.5 pt	Flower bud to bloom stage	Do not plant small grains for 15 days after 2,4-D Banvel treatment. 2,4-D + Banvel suppresses growth for 1 year. Cost: $8.02.
	Roundup	3 qt in 10 gal or less water/A	Flowering through maturity; ropewick application in soybeans	Idle ground or spot treatment on cropland before head or pod fill of crop. Avoid tillage for 7 days. Cost: $34.64.
MILKWEED, HONEYVINE (climbing)	2,4-D Amine (4)	1-2 pt	Before vines reach 3' in length	For use in corn or sorghum. Use lower rates in sorghum. Gives suppression only. Cost: $.85-$2.69. See NebGuide G77-384, *Common Milkweed.*
	2,4-D LV Ester (4)	0.5-1 pt		

Troublesome Weeds and Woody Plants, continued

Weed	Herbicide[5]	Product Per Acre or Per 100 Gallons[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
MULLEIN, COMMON	Ally	0.2 oz	Late fall on rosettes or spring before flowering stalks lengthen	Essential to apply in rosette stage. Add surfactant 2 pt/100 gal solution. Cost: $5.69.
MUSK AND PLUMELESS THISTLE	Ally	0.3 oz	Late fall or spring before bolting	Use in pastures, wheat, grasses for seed, fallow and CRP. Cost: Ally $8.54; Curtail $8.48.
	Curtail	2 pt		
	Escort	1 oz	Bolted plants in spring prior to flowering	Use in noncropland and roadsides. Add surfactant 1 pint/100 gal. Cost: $34.50.
	2,4-D LV Ester (4)	1.5-2 qt	Late fall treatment treatment of rosettes or spring before flowering stalks lengthen Oct. 1-Dec. 1	Annual treatments necessary for control of new seedlings. Fall applications after trees drop leaves and before leafing out in the spring reduces damage. Do not apply after "soil freeze-up" in the fall. For use on ranges and permanent pastures only. Cost: 2,4-D $5.05-$6.74; 2,4-D + Banvel $8.02; Tordon $4.28-$5.70. See NebGuide G76-160, *Musk Thistle.*
	2,4-D LV Ester (4) + Banvel	1 qt + 0.5 pt		
	Tordon 22K (musk only)	6-8 oz		
OAKS	Banvel	2 qt	Full foliage June to July; cut stump or basal treatment anytime	Non-cropland only for Spike and Crossbow. Cost: Banvel $37.22; Crossbow $64.50; Spike $8.60/lb; Velpar RP $.08/tree inch.
	Crossbow	1.5 gal		
	Spike 20P	0.25 oz/1" dia	Spring or fall	
	Velpar RP	4 ml/1" dia	Spot gun-spring to tree base	
OSAGE ORANGE	Crossbow	1.0-1.5 gal	Full foliage June to July; basal treatment anytime	Non-crop areas only. See remarks for cottonwood. Cost: Crossbow $43.00-$64.50; Spike $8.60/lb; Velpar RP $.08/tree inch.
	Spike 20P	0.5 oz/1" dia	Spring or fall	
	Velpar RP	4 ml/1" dia	Spring. Spot gun. Apply to tree base	
POISON HEMLOCK	2,4-D LV Ester (4) + Banvel	1 qt + 0.5 pt	Rosettes—fall or early spring	Cost: $8.02.
POISON IVY	Crossbow	1.0 - 1.5 gal	Full foliage (June)	Thoroughly wet all vegetation. Do not apply to cropland. Cost: $1.10/1000 sq ft.
	Amino Triazole/ Weedazol 90SP	2 tbs/gal of water		
	Amitrol-T/ Cytrol-T 2WS	0.5 cup/ gal of water		
POVERTYWEED — See Bursage				
PUNCTURE VINE	2,4-D LV Ester (4)	1 qt	Pre-bud stage most effective	Mature burs not affected by 2,4-D. Retreatment necessary on new plants. Cost: $3.37.
PURPLE LOOSESTRIFE	Rodeo	2 qt	Apply to plants with active growth in bloom stage or later.	Use Rodeo in or near water sources. Add appropriate surfactant to Rodeo. Cost: Rodeo $55.23; Roundup $23.09.
	Roundup	2 qt		
PURSLANE (in fallow)	2,4-D LV Ester (4)	1 qt	When growing actively	Till 5-7 days after treatment. Do not plant small grains for 15 days. Cost: 2,4-D $3.37.
	Ally + 2,4-D LV Ester (4)	0.1 oz + 0.5 pt	Early post	Add surfactant when used post-emergence. Surfactant 2 qt/100 gal solution. Cost: Ally + 2,4-D $3.70; Amber + 2,4-D $3.92-$4.70.
	Amber + 2,4-D LV Ester (4)	0.28-0.35 oz + 0.5 pt		
RAGWEED, WESTERN (perennial)	2,4-D LV Ester (4)	1 qt	Early summer	Follow-up treatments may be necessary. Cost: $3.37.

Troublesome Weeds and Woody Plants, continued

Weed	Herbicide[5]	Product Per Acre or Per 100 Gallons[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
RED CEDAR	Spike 20P	0.5 oz/1" dia	Spring or fall	Spike for use in non-crop areas only. Tordon and Velpar RP can be used on grazingland. Cost: Spike $8.60/lb; Tordon $91.24; Velpar RP $.08/ tree inch.
	Tordon 22K	4 qt/100 gal	Spring or fall	
	Velpar RP	4 ml/1" dia	Spot gun in spring to tree base	
RUSSIAN KNAPWEED	Banvel 4WS	1-2 qt	Early flower bud stage	Idle ground or grassland. Avoid tillage for 7 days. Injury to forage grasses may occur. Broadleaf crops may be injured for 2 years after treatment. Cost: Banvel $18.61-$37.22; Tordon $45.62.
	Tordon 22K	2 qt		
RUSSIAN OLIVE	2,4-D LV Ester (4) + Banvel	2 qt + 1 qt	Full foliage (early June)	See remarks for cottonwood. Cost: $25.35.
	Spike 20P	0.5 oz/1" dia	Spring or fall	Use on non-cropland only. Cost: $8.60/lb.
RUSSIAN THISTLE	See Kochia for controls.			
RYE VOLUNTEER	SEE DOWNY BROME			
SAGEBRUSH (sand and fringed and green sagewort)	2,4-D LV Ester (4)	1.5-2 qt	4"-8" new growth (June)	1.5 qt/A 2,4-D adequate on sand sagebrush. Cost: $5.05-$6.74. See NebGuide G80-510, *Sagebrush Control.*
SANDBUR	Accent + COC	0.67 oz + 1%	Postemergence in Corn. Sandbur < 1" Corn < 12"	Cost: Accent $17.89; Atrazine $6.31. See NebGuide G74-121, *Field Sandbur Control.*
	Atrazine 4L[2] + COC	2 qt + 2 pt		
	Dual II	2.5-3.0 pts	PRE + Irrigation	Cost $19.87-$23.85.
	Sutan+ + Atrazine 4L	5 pt + 2-2.5 pt	PPI	Cost: $16.07-$16.87.
	Treatments listed for shattercane also control or suppress sandbur.			
SHATTERCANE				
Corn treatments	Accent	0.67 oz	Corn 2-6 leaf Shattercane 4"-6"	Use with COC or surfactant. Do not use if Counter was applied to the corn or within 20 days of an application at planting or cultivation application of any organophosphate insecticide. Do not apply Accent 3 days before or 7 days after a foliar postemergence organophosphate treatment. Do not apply Beacon within 10 days of a foliar post-emergence organophosphate treatment. Beacon may be applied at 0.38 oz followed by a second 0.38 oz treatment if required. Corn hybrids vary in tolerance to Beacon. Dual gives only partial control. Cost: Accent/Beacon $18.90; Dual $19.88-$23.85.
	Beacon	0.75 oz	Corn 4"-20" Shattercane 4"-6"	
	Dual II	2.5-3.0 pts	PRE + Irrigation	
	Pursuit + Surfactant	4 oz + 2 pt/100 gal	Shattercane < 6"	IR Corn Only See NebGuide G74-122, *Shattercane.* Cost: $27.34.
An alternate system — Ridge-till.				
SHATTERCANE				
Soybean treatments	Prowl (3.3)	3.6 pt	Preplant to soybeans	Incorporate by cross discing or equivalent soils mixing. Cost: Prowl $13.39; Sonalan $12.11; Treflan $6.21-$10.35.
	Sonalan	3 pt		
	Treflan 4EC	1.5-2.5 pt		

Troublesome Weeds and Woody Plants, continued

Weed	Herbicide[5]	Product Per Acre or Per 100 Gallons[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
SHATTERCANE (cont'd)	Assure II	7 oz		Use with crop oil concentrate. Cost: Assure $9.75; Fusilade $9.75: Fusion $8.95; Poast $13.38.
Soybean treatments	Fusilade 2000	0.75 pt	Postemergence Cane 6-12"	
	Fusion	8 oz		
	Poast	1 pt		
	Pursuit	4 oz	Postemergence Cane 4-8"	Add nonionic surfactant 1/4% v/v plus 2 qt/A UAN. Cost: $18.94.
	Select	6 oz	Cane 6-12"	Use with COC. Cost: $12.76.
An alternate system — Ridge-till.				
SOAPWEED (Yucca)	Velpar RP	4 ml/plant		Apply with spot gun at base of plant.
SOW THISTLE (Perennial)	2,4-D LV Ester (4)	1.5 qt	Fall rosette or spring bud stage	See remarks for field bindweed. Cost: $5.05.
SPOTTED KNAPWEED	2,4-D LV Ester (4)	1 qt	Rosette stage	Cost: $3.37.
SUMAC	2,4-D LV Ester (4)	1-2 qt	Full foliage	Use sufficient water for good coverage. Cost: $3.37-$6.74.
SUNFLOWER	Beacon	.38 oz	6' or less	POST in corn—Use COC or nonionic surfactant. See velvetleaf for additonal treatments. Cost: $9.52.
SWAMP SMARTWEED (tanweed, shoestring)	2,4-D LV Ester (4) + Banvel	1 qt + 1 pt	When growing vigorously	On crops use lower rates and amine formulations. Cost: $12.68.
	Roundup	3-4 qt in 10 gal or less water/A	Full foliage mid to late summer	Idle ground or spot treatment in cropland before head or pod fill of crop. Avoid tillage for 7 days. Cost: $34.64-$46.19.
VELVETLEAF				
Corn and Sorghum treatments (also control cocklebur, devil's claw & common sunflowers)	AAtrex/ Atrazine 4L[2]	1.2 qt	Velvetleaf less than 4"	Use crop oil concentrate with AAtrex/atrazine and Laddok. Cost: AAtrex/atrazine $3.78; Basagran $8.75-$16.81; Brominal/Buctril $6.55-$9.83; 2,4-D $..85-1.69; Marksman $6.37-$11.40; Laddok $8.12-$12.17.
	Basagran + 28% N	1-2 pt + 1 gal		
	Laddok[2]	2.4 to 3.6 pt		
	Buctril 2EC + Atrazine 4L[2]	1-1.5 pt + 1-2 pt		
	2,4-D LV Ester (4)	0.5-1 pt	Velvetleaf less than 6"	
	Marksman[2]	2-3.5 pt	Before 5-leaf stage of corn	
VELVETLEAF				
Soybean treatments	Command 4 EC	1-1.5 pt	PPI/PRE to soybean planting	Command drift may damage green vegetation. Command residue may damage wheat planted the same fall. Cost: Command $9.91-$14.82 and additional herbicide costs. Basagran $8.76; Classic $9.77-$14.31; Pursuit $18.94; Beacon $12.53-$21.00. See NebGuide G83-861, *Velvetleaf.*
	Basagran + 28% N	1 pt + 1 gal	Velvetleaf less than 4"	
	Beacon + 28% + COC	.5-.76 oz + 1 gal + 1 qt	0-4"	
	Classic + Pinnacle + 28% N + Surfactant	0.25 oz + 0.25 oz + 1 gal + 1/8% v/v		

Troublesome Weeds and Woody Plants, continued

Weed	Herbicide[5]	Product Per Acre or Per 100 Gallons[7,8]	Application Time	Remarks and Approximate Cost/A Broadcast
VELVETLEAF (cont'd)	Pursuit + 28% N + Surfactant	4 oz + 2 qt + 1/4% v/v		
WILDOAT	In Nebraska probably weedy annual brome. See downy brome.			
WILD PROSO MILLET (See NebGuide G83-648)	Eptam	3.5 pt	Preplant to fieldbeans	Apply to dry surface soil and incorporate immediately with a disc or field cultivator. Cost: $11.40.
	Eradicane 6.7E	5 pt		
	Sutan+ 6.7	5 pt	Preplant to corn	Apply to dry surface soil and incorporate immediately with disc or field cultivator. Repeated use of Eradicane Extra or Sutan+ will lead to reduced weed control. Cost: Sutan $12.92; Eradicane $14.73.
	Prowl (3.3) + Bladex 80W	1.2 qt 1.25 lb	Spike stage of corn. Wild proso millet less than 1"	Cost: $18.54.
	Prowl 4EC	1.5 qt	Layby to corn	Direct spray to cover the base of the corn plant and in between corn rows. Incorporate with irrigation water or with cultivation. Cost: $11.16.
	Accent	0.67 oz	Post in corn Wild proso millet 1-3 leaf stage.	Follow label directions. Cost: $17.89.
	Poast	0.5 pt	Postemergence on 4-8" wild proso millet	Post on sugarbeets, soybeans, fieldbeans and alfalfa. Add 1 qt crop oil concentrate per acre. Cost: Poast $6.69.
	Ro-Neet	3.3-4 pt	Preplant to sugarbeets	Cost: $21.24-$25.75.
YARROW	2,4-D LV Ester (4) + Banvel (0.25%)	1.0 lb 0.5 pt	Fall or spring Pre-bloom	Cost: $8.02.

[1]Add X-77 spreader 2 pt (0.25% v/v) per 100 gal spray solution for Cyclone and Gramoxone Extra; 4 pt (0.5% v/v) 100 gal., for Roundup, Roundup RT, Landmaster BW, and Fallow Master application, apply 10 gal or less water per acre, and add 17 lbs ammonium sulfate (spray grade) per 100 gal spray For Roundup/Roundup RT, add 4 pt nonionic surfactant per 100 gal.
[2]If atrazine was applied at planting, the total amount of atrazine per calendar year cannot exceed 2.5 lbs of active ingredient per year.
[3]Use no more than 1.6 qts on <30% crop residue on highly erodible land.
[4]The addition of 0.5 to 1 pt 2,4-D LV ester improves control of broadleaf weeds. Do not apply 2,4-D preemergence after planting sorghum.
[5]Low volatile ester and salt formulations preferred over volatile esters such as isopropyl because of vapor hazards. 2,4-D and MCPA calculated on the basis of 4 lb/gal of acid equivalent (the chemicals responsible for herbicidal effects). For other formulations see Conversion Table on page 54.
[6]Do not use on soils with less than 1% organic matter. Increase injury risk on soils where triazine carryover exists.
[7]For spot treatment add 1 1/2 tablespoons of herbicide per gallon of water for each 1 qt per acre required broadcast, and apply to 1,000 sq ft.
[8]Rates per 100 gallons pertain to handgun on a power sprayer.

Conversion Tables

Rate Per Acre To 1,000 Square Feet

1. Known Facts and Assumptions:

   1 acre = 43,560 sq ft
   1 pt = 16 oz; 1 qt = 32 oz
   1 oz = 2 tablespoons = 6 teaspoons
   Herbicide rate per acre from bulletin or label
   Hand sprayers apply about 1 gal per 1,000 sq ft

2. Convert Herbicide Rate Per Acre to Ounces:

   For example, 2 qt per acre = 64 oz

3. Convert 64 oz per acre to oz per 1,000 sq ft

   64 , 43 = 1.50 oz or 3 tablespoons per 1,000 sq ft

4. Add 3 tablespoons of the product to 1 gal of water and apply uniformly to 1,000 sq ft

Spot Treatment

For hand sprayers used for spot treatments, add 1 1/2 tablespoons of herbicide per gallon of water for each 1 qt per acre required broadcast. Apply to 1,000 sq ft. Application amounts are dependent upon spray pressure, walking speed during treatment, and nozzle size. For powered handgun applications, mix broadcast rate in 100 gallons of water.

NOTE: Wettable powder herbicide rates would be determined by the same procedure; however, since volume or density of wettable powder herbicides varies, the calculated rate per 1,000 sq ft should be carefully measured by weighing on a precision scale.

Equivalent Amounts of Different Formulations

1 qt AAtrex or atrazine = 4L = 1.25 lb AAtrex or atrazine 80W = 1.1 lb AAtrex Nine-O
1 qt Bladex 4L = 1.25 lb Bladex 80W = 1.1 lb Bladex 90DF
1 qt Ramrod Flowable = 1.5 lb Ramrod 65W
0.5 pt Sencor/Lexone 4L = 0.5 lb Sencor/Lexone 50W = 0.33 lb Sencor/Lexone 75DF

Active Ingredient Per Gallon Conversions

Pounds of active material per gal of commercial product	*Pints of commercial product needed per acre to give the following pounds of herbicide per acre*		
	1/4 lb	*1/2 lb*	*1 lb*
2.00	1	2	4
2.64	3/4	1 1/2	3
3.00	2/3	1 1/3	2 2/3
3.34	3/5	1 1/5	2 2/5
4.00	1/2	1	2
6.00	1/3	2/3	1 1/3

Metric Conversions

Symbol	*When You Know*	*Multiply By*	*To Find*	*Symbol*
lb	pounds	0.45	kilograms	kg
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
oz	ounces	30.00	milliliters	ml
A	acres	0.40	hectares	ha
ha	hectares	2.50	acres	A

Time until Herbicides are Rainfast

Herbicide	Hrs Until Rainfast	Herbicide	Hrs Until Rainfast
ACCENT	4	FUSILADE 2000	1
ALLY	4	FALLOW MASTER	6
AMBER	24	GRAMOXONE EXTRA/ CYCLONE	.5
ASSURE II	1	GLEAN	4
ASSERT	3	HARMONY EXTRA	4
ATRAZINE	4	HOELON	1
AVENGE	6	LADDOK	4
BANVEL/CLARITY	4	LANDMASTER BW	6
BASAGRAN	4	MARKSMAN	4
BEACON	4	MCPA	1
BICEP/BICEP II	4	OPTION/WHIP	1
BLADEX	4	PINNACLE	1
BLAZER	6	POAST/POAST PLUS	1
BRONCO	6	PURSUIT	1
BRONATE	1	REFLEX	4
BUCTRIL	1	RESCUE	6
BUCTRIL/ATRAZINE	1	ROUNDUP/RASCAL	6
BUTYRAC 200	6	SCEPTER	2
CURTAIL	8	STINGER	8
CURTAIL M	8	TACKLE	6
CLASSIC	1	TOUGH	2
COBRA	.5	2,4-D	1
EXPRESS	4	TORDON	2
EXTRAZINE II	4		

Herbicide Dictionary

AAtrex* (atrazine) Ciba-Geigy. EPA Reg. No. 100-497

Accent (nicosulfuron) Postemergence grass control in corn. DuPont. EPA Reg. No. 352-534

Alachlor Active ingredient in Lasso, Judge, Confidence, Stall, Saddle and Arena. Monsanto.

Alanap (naptalam) A pre and postemergence broadleaf and grass herbicide for soybeans and vine crops. Uniroyal. EPA Reg. No. 400-49

Ally (metsulfuron) Used in wheat, barley, and fallow for broadleaf and certain grass weed control. 3-6 week residual. DuPont. EPA Reg. No. 352-435

Amber (triasulfuron) A pre and postemergent herbicide for broadleaf weed control in wheat, barley, and fallow. Ciba-Geigy. EPA Reg. No. 100-701

Amino Triazole (amitrole) American Cyanamid.

Amitrole* A translocated herbicide that inhibits chlorophyll formation and regrowth from root buds. Trade names are Amino Triazole, Cytrol and Weedazol. EPA Reg. No. 264-135-ZA

Amitrol-T* Amitrole + ammonium thiocyanate. Rhone-Poulenc.

Arena (alachlor) Monsanto.

Aquathol (endothall) An aquatic herbicide for use in still water. Pennwalt. EPA Reg. No. 4581-204

Aquazine (simazine) An aquatic herbicide for use in still water. Ciba-Geigy. EPA Reg. No. 100-650

Arsenal (imazapyr) Provides total vegetation control for noncrop areas. American Cyanamid. EPA Reg. No. 241-273

Assert (imazethabenz) Control wild oats not annual bromes in wheat. American Cyanamid. EPA Reg. No. 241-285

Assure II(quizalofop) A postemergence grass herbicide for use in soybeans. DuPont. EPA Reg. No. 352-541

Asulox (asulam) For postemergence weed control in turf, ornamentals, Christmas trees end non-crop areas. Rhone-Poulenc. EPA Reg. No. 264-447

Atrazine* A preplant, preemergence and post-emergence s-triazine for broadleaf and certain grass weeds in corn, sorghum and rangeland. Available under several trade names.

Avenge (difenzoquat) Controls wild oats not annual bromes postemergence in spring small grain. American Cyanamid. EPA Reg. No. 241-266

Balan (benefin) A preplant incorporated herbicide for annual grass control in alfalfa. DowElanco. EPA Reg. No. 62719-94

Banvel (dicamba) A post and preemergence herbicide for selective broadleaf weed control in corn, sorghum, small grains and grasses. Sandoz. EPA Reg. No. 55947-1

Basagran (bentazon) A postemergence fieldbean, corn, sorghum and soybean herbicide for velvetleaf, cocklebur and other broadleaf weeds under 6". BASF. EPA Reg. No. 7969-45

Battalion (MON 12000 + safener) Under development for PRE and PPI use for broadleaf weed control in corn and sorghum. Monsanto.

Beacon (primisulfuron) Postemergence grass control in corn. Ciba-Geigy. EPA Reg. No. 100-705

Betamix (phenmedipham + desmedipham) A prepackaged combination of 8% Betanal + 8% Betanex for postemergence broadleaf weed control in sugarbeets. NOR-AM. EPA Reg. No. 45639-87

Betanex (desmedipham) Used postemergence for redroot pigweed control in sugarbeets. NOR-AM. EPA Reg. No. 407-MN-1

Bicep* 6E (metolachlor + atrazine) A combination of 35.6% Dual + 28.9% AAtrex for preemergence use in corn and sorghum safened with Concep II. Ciba-Geigy. EPA Reg. No. 100-645

Bicep II* (metolachlor + atrazine + benoxacor) A combination of 34.8% Dual + 28.8% AAtrex for preemergence use in corn and sorghum treated with Concep II or III. Ciba-Geigy. EPA Reg. No. 100-710

Bladex* (cyanazine) A short residual triazine for grass and broadleaf weed control in corn and sorghum. DuPont. EPA Reg. No. 352-470

Blazer (acifluorfen) A postemergence herbicide for broadleaf weed control in soybeans. BASF. EPA Reg. No. 7969-79

Broadstrike (flumetsulam) PRE and PPI broadleaf weed control in corn and soybeans. Dow Elanco.

Bronate A combination of 21.8% bromoxynil and 21.8% MCPA for use in small grain. Rhone-Poulenc. EPA Reg. No. 264-438

Bronco (alachlor + glyphosate) A prepackaged combination of 27.6% Lasso + 14.8% Roundup for use in no-till corn, soybeans. and screen safened sorghum. Monsanto. EPA Reg. No. 524-341-AA

Buctril (bromoxynil) A contact herbicide for broadleaf control in corn, sorghum and small grains. Rhone-Poulenc. EPA Reg. No. 264-437

Bullet* (Alachlor MT + Atrazine) A combination of 25.2% Lasso MT plus 15.1% Atrazine. Monsanto. EPA Reg. No. 524-418

Butyrac(2,4-DB) For selective control of cocklebur in soybeans and small broadleaf weeds in alfalfa. Rhone-Poulenc. EPA Reg. No. 264-164

Cannon* (alachlor + trifluralin) A combination of 29.5% Lasso + 5.9% trifluralin. Monsanto. EPA Reg. No. 524-412

Canopy Combinations of 10.7% chlorimuron active ingredient and 64.3% metribuzin, for preemergence use in soybeans. DuPont. EPA Reg. No. 352-444

Casoron (dichlobenil) Used for preemergence weed control in woody plants and certain herbaceous perennials. Uniroyal. EPA Reg. No. 400-168

Chlorate-3 (sodium chlorate) Used as a sorghum desiccant. Midwest Companies.

Clarity A low volatile formulation of dicamba to be used postemerge in corn and sorghum. Sandoz.

**Restricted Use Pesticide*

Herbicide Dictionary

Classic (chlorimuron ethyl) A postemergence herbicide for broadleaf weed control in soybeans. DuPont. EPA Reg. No. 352-436

Cobra (lactofen) Used postemergence for broadleaf weed control in soybeans. Chevron. EPA Reg. No. 59639-34

Command (clomazone) A preplant incorporated herbicide for grass and broadleaf weed control in soybeans. FMC. EPA Reg. No. 279-3053

Commence A prepack of 33.2% trifluralin + 24.9% clomazone for use in soybeans. FMC, DowElanco. EPA Reg. No. 279-3104

Concep II (oxabatrinil) A protectant for sorghum seed to prevent Dual and Bicep injury. Ciba-Geigy. EPA Reg. No. 100-AL-1

Concep III (fluxofenim) A protectant for sorghum seed to prevent Dual and Bicep injury. Ciba-Geigy. EPA Reg. No. 100-NC-2

Concert (chlorimuron ethyl + thifensulfuron methyl) A combination of 50% Classic + 50% Pinnacle for postemerge broadleaf control in soybeans. Dupont.

Confidence (alachlor) Cenex Land o'Lakes.

Copper Sulphate Available as crystals or in cheated form for algae control in moving and still water. Several brand names.

Cropstar Lasso granular.

Crossbow (2,4-D + trichlopyr) Ester formulation 34.4% of 2,4-D and 16.5% Garlon for broadleaf weeds and woody plants. DowElanco. EPA Reg. No. 62719-67

Curbit (ethalfluralin) Used PRE and PPI in melons and cucumbers for grass controls. UAP. EPA Reg. No. 34704-610.

Curtail A combination of 7.5% clopyralid + 38.4% 2,4-D for postemergence broadleaf control in small grain. DowElanco. EPA Reg. No. 62719-48

Curtail M A combination of 5% clopyralid + 43.4% MCPA for postemergence broadleaf control in small grains. DowElanco. EPA Reg. No. 62719-86

Cycle* (cyanazine + metolachlor) A prepack of 22% cyanazine and 22% metolachlor for weed control in field corn and sorghum. Ciba-Geigy. EPA Reg. No. 100-716

Cyclone* (paraquat) A 2 lb/gal formulation of paraquat for weed control in fallow situations. Zeneca. EPA Reg. No. 10182-111

Cytrol* (amitrole) Am. Cyanamid.

Dacamine An oil soluble amine salt formulation of 2,4-D. Fermenta.

Dacthal (DCPA) Used preemergence for annual grass and certain broadleaf weeds in turf, ornamentals and horticultural crops. Fermenta. EPA Reg. No. 50534-1

Diquat (diquat) Used for aquatic weed control and desiccation of legume, soybean and grain sorghum seed crops. Zeneca. EPA Reg. No. 10182-354

Direx 4L (diuron) Griffin. EPA Reg. No. 1812-257

Dual (metolachlor) Used preplant or preemergence for annual grass and some broadleaf weeds in corn, sorghum and soybeans. Ciba-Geigy. EPA Reg. No. 100-673

Dual II (metolachlor) Dual + a safener. Ciba-Geigy. EPA Reg. No. 100-711

Endothal (endothall) Used preemergence and postemergence for annual grass and broadleaf weeds in sugarbeets and as a desiccant. BLF Atochem. 4581-79

Eptam (EPTC) Used preplant soil incorporated for grass and certain broadleaf weeds in corn, legumes, sugarbeets and many horticultural crops. Zeneca. EPA Reg. No. 10182-160

Eradicane (EPTC + R-29148 antidote) Used preplant incorporated in corn. The antidote provides greater crop safety. Zeneca. EPA Reg. No. 10182-323

Eradicane Extra (EPTC + R-29148 antidote + R-33865 extender) The extender restores performance on soils where Eradicane has ceased to perform. Zeneca. EPA Reg. No. 10182-244

Escort (metsulfuron) An industrial formulation of Ally. DuPont. EPA Reg. No. 352-439

Evik (ametryn) Used as a directed postemergence contact spray for weeds in corn. Ciba-Geigy. EPA Reg. No. 100-473

Express (tribenuron methyl) A short residue herbicide for broadleaf weed control in cereal crops. EUP. DuPont. EPA Reg. No. 352-509

Extrazine II* (cyanazine + atrazine) A combination of 32% Bladex + 11% atrazine for PP or preemergence use in corn. DuPont. EPA Reg. No. 352-500

Fallow Master (glyphosate + dicamba) A combination of 16.5% Roundup plus 7.0% Banvel. Monsanto. EPA Reg. No. 524-390

Far-Go (triallate) For preplant control of downy brome and other grasses in winter wheat. Monsanto. EPA Reg. No. 524-145-AA

Freedom* (trifluralin + alachlor) A combination of 31.7% Lasso and 3.9% Treflan for preplant incorporated use in soybeans. Monsanto. EPA Reg. No. 524-422

Frontier (SAN 582H) PRE and PPI grass control in corn and soybeans. Sandoz. EPA Reg. No. 55947-140

Fusilade 2000 (fluazifop) A selective postemergence herbicide for shattercane, volunteer corn and other grasses in soybeans, nursery stock and ornamentals. Zeneca. EPA Reg. No. 10182-104

Fusion (fluazifop + fenoxaprop) A combination of 24.15% Fusilade and 7.95% of Option for postemergence grass control in soybeans. Zeneca EPA Reg. No. 10182-343

Galaxy (bentazon + acifluorfen) A combination of 33.4% Basagran and 6.8% Blazer for postemergence broadleaf control in soybeans. BASF. EPA Reg. No. 7969-77

Garlon (triclopyr) For control of woody plants and broadleaf weeds in non-crop areas. Dow. EPA Reg. No. 62719-32

Gemini (linuron + chlorimuron ethyl) 4.6% Classic + 55.4% linuron (Lorox) on an active ingredient basis for preemergence use in soybeans. DuPont. EPA Reg. No. 352-544

Glean (chlorsulfuron) A pre and postemergence broadleaf herbicide for small grains. DuPont. EPA Reg. No. 352-522

**Restricted Use Pesticide*

Herbicide Dictionary

Glyphosate Active ingredient in Honcho, Jury, Mirage, Rascal, Rattler, Roundup, Ruler, Showoff, and Silhouette. Monsanto.

Goal (oxyfluorfen) A preemergence herbicide for soybeans, onions and nursery stock. Rohm Haas. EPA Reg. No. 707-174

Gramoxone Extra* (paraquat) 2.5 qt/gal formulation. Zeneca. EPA Reg. No. 10182-280

Harmony Extra (thifensulfuron + tribenuron) 50% Harmony + 25% of Express for weed control in small grains. DuPont. EPA Reg. No. 352-538

Herbicide 273 (endothall) A postemergence sugar beat herbicide especially effective against broadleaf weeds. Pennwalt. EPA Reg. No. 4581-223

Hi-Dep Formulation of 2,4-D ester for low volume application. PBI Gorden. EPA Reg. No. 2217-703

Hoelon*(diclofop) Used postemergence for annual grass in soybeans and wheat. American Hoechst. EPA Reg. No. 8340-20-54382

Honcho (glyphosate) Cornbelt/Independents.

Hyvar (bromacil) Used as a soil sterilant and for woody plant control. DuPont. EPA Reg. No. 352-287

Judge (alachlor) Terra.

Jury (glyphosate) Terra.

Karmex (diuron) A substituted urea for selective annual weed control at low rates and as a soil sterilant at higher rates. DuPont. EPA Reg. No. 352-508

Kerb* (pronamide) Used preemergence and early postemergence in alfalfa. Rohm & Haas. EPA Reg. No. 707-159

Krenite (fosamine) A water soluble brush control agent that can be used on noncropland areas adjacent to water. DuPont. EPA Reg. No. 352-395

Krovar A combination of 40% bromacil and 40% diuron. DuPont. EPA Reg. No. 352-505

Laddok* (bentazon + atrazine) A combination of 19% Basagran + 17.5% Atrazine for postemergence broadleaf weed control in corn. BASF. EPA Reg. No. 7969-54

Landmaster BW A combination of 12.9% glyphosate (Roundup) and 20.6% 2,4-D primarily for no-till. Monsanto. EPA Reg. No. 524-351

Landmaster II A combination of 13.3% roundup + 11.1% 2,4-D amine. Monsanto. EPA Reg. No. 524-376

Lariat* A prepack of 27.7% alachlor + 15.5% atrazine. Monsanto. EPA Reg. No. 524-329

Lasso* (alachlor) Used preplant and preemergence for annual grass and some broadleaf weeds in corn, sorghum, soybeans and fieldbeans. Monsanto. EPA Reg. No. 524-314

Lasso II* (alachlor) Granular formulation of Lasso. Monsanto. EPA Reg. No. 524-296

**Restricted Use Pesticide*

Leafex-3 (sodium chlorate) Used as a sorghum desiccant. Occidental.

Lexone (metribuzin) Trade name for metribuzin. DuPont. EPA Reg. No. 352-390

Linex 4L (linuron) Trade name for linuron. Griffin. EPA Reg. 1812-245

Linuron Used primarily preemergence for broadleaf weeds in corn, sorghum and soybeans. Linex and Lorox.

Lorox (linuron) Trade name for linuron. DuPont. EPA Reg. No. 352-394

Lorox Plus A combination of 56.9% linuron + 3.1% chlorimuron for preemergence use in corn, sorghum, and soybeans. DuPont. EPA Reg. No. 352543

Marksman* A combination of 13.42% dicamba and 22.23% atrazine for postemergence weed control in corn. Sandoz. EPA Reg. No. 55947-39

MCPA A phenoxy similar to 2,4-D but safer on oats and legumes. Often used in combination. Many trade names. Rhone-Poulenc.

Metribuzin Used for annual broadleaf weeds in soybeans, alfalfa and potatoes; often used in combination. Trade names - Lexone and Sencor.

Micro-Tech Micro-encapsulated alachlor. Monsanto. EPA Reg. No. 524-344

Mirage (glyphosate) UAP.

MSMA (monosodium methanearsonate) Used for selective crabgrass control in turf and johnsongrass in noncrop areas. Rhone-Poulenc.

Nortron (ethofumesate) A preemergence or preplant incorporated herbicide for sugarbeets. NOR-AM. EPA Reg. No. 45639-8

Option II (fenoxaprop) Formerly called Whip. A postemergence grass herbicide similar to Fusilade and Poast. Hoechst-Roussel. EPA Reg. No. 8340-40-54382

Oust (sulfometuron methyl) A noncropland herbicide that also provides suppression of perennial grasses at lower rates. DuPont. EPA Reg. No. 352-401

Paraquat A nonselective contact herbicide used for no-till and ecofarming, soybean and sunflower desiccation, and on noncropland. Gramoxone Extra. Zeneca.

Partner* (alachlor) Dry flowable formulation of Lasso. Monsanto. EPA Reg. No. 524-403

Passport A combination of 27.5% Trifluralin + 2.2% imazethapyr. American Cyanamid. EPA Reg. No. 241-325

Pendimethalin Common name for Prowl. Also active ingredient in some preemergence turf herbicides. American Cyanamid.

Pennant (metolachor) Industrial label for Dual. Ciba-Geigy.

Permit (MON 12000) Under development for post-emerge broadleaf weed control in corn and sorghum. Monsanto. EPA Reg. No. 524-EUP-74

Picloram* Common name for Tordon. Dow Elanco

Herbicide Dictionary

Pinnacle (thifensulfuron methyl) Pinnacle is used postemergence for broadleaf control in soybeans. DuPont. EPA Reg. No. 352-525

Poast (sethoxydim) A postemergence herbicide for shattercane, volunteer corn and other grass weeds in soybeans and other broadleaf crops. BASF. EPA Reg. No. 7969-58

Poast Plus A combination of sethoxydim + dash. BASF. EPA Reg. No. 7969-88

Pramitol (prometon) Used primarily for season long control of annual and perennial weeds in noncropped areas. Ciba-Geigy. EPA Reg. No. 100-479

Prefar 4E (bensulide) Used preplant for grass and broadleaf weeds in cantaloupe, cucumbers and watermelons. Zeneca. EPA Reg. No. 510-231-1182

Preview (metribuzin + chlorimuron ethyl) 68.5% lexone + 6.5% of classic on an active ingredient basis. For use in soybeans. DuPont. EPA Reg. No. 352-448

Princep (simazine) A long lasting preemergence or preplant herbicide for corn, shelterbelts. Ciba-Geigy. EPA Reg. No. 100-603

Propachlor Active ingredient in Ramrod. Used for grass weed control in corn and sorghum.

Prowl (pendimethalin) Used preemergence on corn and preemergence or preplant on soybeans grown on soils with more than 1.5% organic matter. American Cyanamid. EPA Reg. No. 241-243

Pursuit (imazethapyr) Same family as Scepter registered postemergence for use in soybeans. American Cyanamid. EPA Reg. No. 241-310

Pursuit Plus (imazethapyr + pendimethalin) A combination of 2.2% Pursuit and 30.73% Prowl for preplant incorporation use in soybeans. American Cyanamid. EPA Reg. No. 241-331

Pyramin (pyrazon) Use for preemergence for broadleaf weeds in sugarbeets. BASF. EPA Reg. No. 7969-81

Rascal (glyphosate) Cooperatives.

Ramrod (propachlor) Monsanto. EPA Reg. No. 524-152-AA

Ramrod-atrazine Flowable (propachlor + atrazine) A combination of 31.5% Ramrod and 10% atrazine for broad spectrum weed control in corn and sorghum. Monsanto. EPA Reg. No. 524-328-AA

Rattler (glyphosate) Helena.

Rescue (naptalam + 2,4DB) A combination of 23.7% alanap + .6% 2,4-DB for postemergence use for broadleaf weeds in soybeans. Uniroyal. EPA Reg. No. 400-166

Rodeo (glyphosate) Special formulation of glyphosate for aquatic weed control. Similar to Roundup. Monsanto. EPA Reg. No. 524-343

Ro-Neet (cycloate) Used preplant incorporated in sugarbeets for annual grass and some broadleaf weeds. Zeneca. EPA Reg. No. 10182-222

Roundup (glyphosate) A postemergence non-selective translocated herbicide for annual and perennial grasses and broadleaf weeds. No soil activity. Monsanto. EPA Reg. No. 524-445

Roundup RT (glyphosate) Same as Roundup, but available only in a 100-gallon returnable shuttle. Monsanto. EPA Reg. No. 524-308

Ruler (glyphosate) Wilber Ellis/Brayton.

Saddle* (alachlor) Van Deist.

Salute 4EC (trifluralin + metribuzin) Package blend of 14% metribuzin + 28% trifluralin for soybeans. Miles. EPA Reg. No. 3125-375

Salvo A low volatile ester of 2,4-D. Vertac.

Savage (2,4-D) Dry formulation of 2,4-D. UAP.

Scepter (imazaquin)—A preplant incorporated, preemergence and postemergence grass and broadleaf weed control herbicide for soybeans. American Cyanamid. EPA Reg. No. 241-289

Screen A protectant for application to sorghum seed to prevent Lasso injury. Monsanto.

Select (clethodium) Used post emergence for annual and perennial grasses in soybeans. Valent. EPA Reg. No. 59639-3

Sencor Trade name for metribuzin. Miles. EPA Reg. No. 3125-325

Showoff (glyphosate) Van Deist.

Shotgun* (2,4-D + Atrazine) A combination of 25% atrazine + 16.58% 2,4-D for use in sorghum and corn. UAP.

Silhouette (glyphosate) Cenex/Land O'Lakes.

Simazine Common name for Princep. Ciba-Geigy.

Sinbar (terbacil) Used for dormant season control of annual grass and broadleaf weeds in established alfalfa. DuPont. EPA Reg. No. 352-317

Solicam (norflurazon) Used preemergence in fruit trees. Sandoz. EPA Reg No. 55947-78

Sonalan (ethalfluralin) Used preplant incorporated for annual grasses and certain broadleaf weeds in soybeans. DowElanco. EPA Reg. No. 62719-120

Spike (tebuthiuron) Used for total vegetation and selective brush control in grassland and noncrop areas. DowElanco. EPA Reg. No. 62719-121

Squadron (imazaquin + pendimethalin) Package mix of 21.96% Prowl + 3.65% Scepter for preplant weed control in soybeans. American Cyanamid. EPA Reg. No. 241-327

Stall* (alachlor) UAP.

Stinger (clopyralid)—For postemergence broadleaf control in sugarbeets and corn. DowElanco. EPA Reg. No. 62719-73

**Restricted Use Pesticide*

Herbicide Dictionary

Surflan (oryzalin) Used preemergence for annual grasses in trees, turf and ornamentals. Often used in combination. DowElanco. EPA Reg. No. 62719-112

Surpass (acetochlor + safener) Under development for use pre in corn. Zeneca

Sutan + (butylate + R-25788) A preplant incorporated herbicide for annual grasses in corn. Zeneca. EPA Reg. No. 10182-222

Sutazine + (butylate + atrazine) A combination of 56.8% Sutan+ + 13.9% atrazine for preplant incorporated weed control in corn. Zeneca. EPA Reg. No. 10182-248

2,4-D A growth regulating phenoxy herbicide for broadleaf weed control in grass crops. Many trade names.

Telar (chlorsulfuron) An industrial formulation of the active ingredient in Glean. DuPont. EPA Reg. No. 352-404

Telone (dichlorophene) A fumigant used preplant for quack grass in potatoes. DowElanco. EPA Reg. No. 62719-12

Tillam (pebulate) Registered preplant incorporated for annual grass control in sugarbeets. Zeneca. EPA Reg. No. 10182-158

Tordon* (picloram) A postemergence herbicide for annual and perennial broadleaf weeds. Residues may last for several years in the soil. DowElanco. EPA Reg. No. 62719-6

Touchdown (sulphosate) A non selective, non-residual translocated postemergence herbicide. Zeneca. EPA Reg. No. 10182-324

Tough (pyridate) Used in combination with Bladex or atrazine for postemergence weed control in corn. Cedar Chemical. EPA Reg. No. 10182-324

Treflan (trifluralin) Used preplant incorporated in soybeans and nursery stock for annual grass control. DowElanco. EPA Reg. No. 62719-118

Tri-Scept (imazaquin + trifluralin) A prepack of 28.6% trifluralin + 4.72% Scepter. American Cyanamid. EPA Reg. No. 241-307

Trific DF formulation of trifluralin. Terra.

Trifluralin The active ingredient in Treflan.

Trimec A three way combination of 25.93% 2,4-D, 13.85% mecoprop and 2.76% dicamba for lawn weed and woody plant control. PBI-Gordon. EPA Reg. No. 2217-721

Trinilin Trifluralin.

Turbo 8EC (metoachlor + metribuzin) A package mix of 70% Dual + 15%mMetribuzin for use in soybeans. Miles. EPA Reg. No. 3125-366

Velpar L (hexazinone) Used for nonselective postemergence weed control on noncropland, Christmas tree plantings and alfalfa. DuPont. EPA Reg. No. 352-378

Velpar R.P. A liquid formulation used undiluted for spot spraying woody plants in range and pasture. DuPont.

Weedazole (amitrole) Rhone-Poulenc.

Weedone 638 A combination of 13.8% 2,4-D acid and 24.5% of 2,4-D ester. Rhone-Poulenc.

Weedtrine II (2,4-D) Granular formulation for aquatic weed control.

Weedtrine D (diquat) Use for aquatic weed control.

**Restricted Use Pesticide*

Approximate Retail Prices of Selected Herbicides

Herbicide	Price	Herbicide	Price	Herbicide	Price
Accent	$ 26.70/oz	Cycle	$ 33.93/gal	X-77	$ 17.50/gal
Ally	$ 28.46/oz	Cyclone	$ 26.13/gal	Partner	$ 4.15/lb
Amber	$ 11.03/oz	2,4-D amine	$ 10.75/gal	Pinnacle	$ 28.99/oz
AAtrex 4L	$ 12.62/gal	2,4-D ester	$ 13.51/gal	Poast Plus	$ 48.39/gal
AAtrex 80W	$ 3.00/lb	Dacthal 75W	$ 4.80/lb	Pramitol SP	$ 1.20/gal
AAtrex DF	$ 3.02/lb	Diquat	$ 77.80/gal	Pramitol 25E	$ 20.50 gal
Alanap L	$ 13.30/gal	Dowpon M	$ 2.15/lb	Prefar	$ 35.40/gal
Amitrol-T	$ 21.50/gal	Dual 8E	$ 63.61/gal	Preview	$ 30.57/lb
Ammonium Sulfate	$ .18/lb	Eptam 7E	$ 27.38/gal	Princep 80W	$ 3.55/gal
Aquathol	$ 1.10/lb	Eptam 10G	$ .39/lb	Princep 4L	$ 16.80/gal
Aquathol 1.6E	$ 45.10/gal	Eradicane	$ 23.58/gal	Prowl	$ 29.76/gal
Aquazine	$ 8.85/gal	Escort	$ 34.50/oz	Pursuit	$ 594.87/gal
Assure II	$ 139.00/gal	Extrazine II	$ 18.06/gal	Pursuit Plus	$ 76.03/gal
Arsenal	$ 184.54/gal	Fallow Master	$ 22.80/gal	Ramrod-Atrazine	$ 14.92/gal
Balan	$ 16.00/gal	Far-Go 10G	$ 1.00/lb	Ramrod-Flowable	$ 16.34/gal
Banvel	$ 74.45/gal	Freedom	$ 11.96/gal	Rodeo	$ 110.45/gal
Basagran	$ 64.47/gal	Frontier	$ 108.00/gal	Ro-Neet 7E	$ 51.50/gal
Beacon	$ 25.06/oz	Fusilade 2000	$ 86.00/gal	Roundup	$ 46.19/gal
Betamix	$ 85.00/gal	Fusion	$ 143.25/gal	Roundup RT	$ 35.00/gal
Bicep	$ 32.51/gal	Galaxy	$ 56.84/gal	Salute	$ 65.90/gal
Bladex 4L	$ 23.93/gal	Glean	$ 18.23/oz	Sceptor	$ 214.65/gal
Bladex 90DF	$ 5.31/lb	Goal 1.6E	$ 77.00/gal	Select	$ 204.24/gal
Blazer 2L	$ 57.67/gal	Gramoxone Extra	$ 30.76/gal	Sencor DF	$ 136.39/gal
Brominal 3+3	$ 77.00/gal	Harmony Extra	$ 11.97/oz	Sencor DF	$ 25.96 lb
Bronate	$ 54.61/gal	Herbicide 273	$ 38.00/gal	Sinbar	$ 22.50/lb
Bronco	$ 26.86/gal	Hyvar X	$ 17.25/gal	Solicam	$ 10.80/lb
Buctril	$ 52.45/gal	Hyvar XL	$ 50.55/gal	Sonalan	$ 32.29/gal
Buctril Gel	$ 108.61/gal	Karmex 80W	$ 4.30/lb	Spike 5G	$ 3.00/lb
Buctril + Atrazine	$ 34.71/gal	Krenite	$ 58.35/gal	Spike 80W	$ 21.50/lb
Bullet	$ 19.71/gal	Krovar I	$ 9.20/lb	Spike 20P	$ 8.60/lb
Butoxone	$ 15.00/gal	Laddok	$ 27.05/gal	Squadron	$ 60.39/gal
Butyrac	$ 35.71/gal	Landmaster BW	$ 19.15/gal	Stinger	$ 466.22/gal
Canopy	$ 36.88/lb	Lasso	$ 25.71/gal	Surflan	$ 67.00/gal
Casoron 10G	$ 3.40/lb	Lasso II	$ .99/lb	Sutan+	$ 20.67/gal
Casoron 50W	$ 15.00/lb	Lariat	$ 19.22/gal	Sutazine	$ 17.85/gal
Casoron 4G	$ 1.25/lb	Leafex 3	$ 3.45/gal	Team	$ 25.00/oz
Classic	$ 18.14/oz	Lexone 4L	$ 142.70/gal	Telar	$ 21.55/oz
Clarity	$ 85.10/gal	Lexone DF	$ 26.08/lb	Treflan	$ 33.11/gal
Cobra	$ 117.51/gal	Lorox DF	$ 9.02/lb	Tordon 22K	$ 91.24/gal
Commence	$ 64.30/gal	Lorox Plus	$ 16.01/lb	Tough	$ 86.80/gal
Command 4EC	$ 79.26/gal	Marksman	$ 25.51/gal	Turbo	$ 99.27/gal
Crop Oil Conc.	$ 4.24/gal	MCPA	$ 13.83/gal	UAN	$ 0.70/gal
Crossbow	$ 43.00/gal	Micro-Tech	$ 26.08/gal	Velpar	$ 29.50/lb
Curbit	$ 39.00/gal	Norosac 4G	$ 1.25/gal	Vernam	$ 28.00/gal
Curtail	$ 33.93/gal	Nortron SC	$ 166.00/gal		

Weed Science Publications

Annual Broadleaf Control In Winter Wheat - G88-863
Banvel and 2,4-D Damage to Fieldbeans and Soybeans - G86-802
Band Application of Herbicides - G76-294
Calibrating a Sprayer - G82-566
Canada Thistle - G80-509
Chemical Control of Rangeland Weeds - G88-871
Common Milkweed - G77-384
Guidelines for Constructing a Pipewick Applicator - G81-555
Disposal of Excess Pesticides and Related Waste - G79-473
Control of Downy Brome in Alfalfa - G79-436
Downy Brome Control - G78-422
Ecofarming: Fallow Aids in Winter Wheat Fallow Rotations - G81-546
Ecofarming: Floaters for Herbicide Application - G81-550
Ecofarming: Management of Atrazine Carryover in Ecofallow - G81-570
Ecofarming: Selection of Sprayers - G80-500
Ecofarming: Spring Row Crop Planting and Weed Control in Winter Wheat Stubble - G81-551
Ecofarming-Growing the Winter Wheat Crop - G91-1009
Ecofarming-Managing Corn and Sorghum Residue During Fallow - G91-1010
Factors Affecting Foliar-Applied Herbicides G84-700
Fine Tuning a Sprayer With the "Ounce" Calibration Method - G88-865
Field Sandbur Control in Corn - G74-121
Hay Fever Plants of Nebraska - EC77-199
Hemp Dogbane - G83-665
Herbicides and Soils - G83-653
Jointed Goatgrass - G75-210
Lawn Weeds - NC Regional Pub. No. 26
Leafy Spurge - G87-834
No-Till Corn in Alfalfa Sod - G74-131
Nozzles-Selection and Sizing - G89-955
Plumbing Systems for Agricultural Sprayers - G91-1020
Right Crop Stage for Herbicide Use: Alfalfa, Sugarbeets, Soybeans and Fieldbeans - G78-390
Right Crop Stage for Herbicide Use: Corn, Sorghum, Small Grains - G77-382
Sagebrush Control - G80-510
Spray Drift of Pesticides - G90-1001
Quick Test for Atrazine Carryover - G74-113
Velvetleaf - G83-681
Vine Weeds - NC Regional Pub. No. 33
Weed Control in Alfalfa - G75-220
Weed Control Along Irrigation Pipe and Ditchbanks - G78-420
Weed Control in No-Till Corn, Grain Sorghum and Soybean Production - G89-899
Weed Control in Reduced Tillage Corn - G74-123
Weed Control on CRP Acres - G89-905